Chapter 501: Building a Supercomputer

Lu Zhou was stunned when he heard Principal Xu's concern, so he smiled and spoke.

"Actually it's not a big deal, maybe Old Zhou thinks that my development is going too smoothly and is worried about me surpassing him. He probably wrote that article hoping I would slow down and wait for him to catch up."

Principal Xu heard Lu Zhou's words and shook his head.

"Your mentality is so strong, still able to make jokes with me."

"It's not that big of a deal, making a joke isn't a big deal," Lu Zhou carelessly smiled and said. "From Mr. Zhou's point of view, he owns the controllable nuclear fusion field. Obviously, he wants to control everyone in this field. To put it bluntly, this isn't a fight between the Stellarator and Tokamak. Regardless of what I am researching, as long as he isn't in control of the STAR Stellarator project and my research is affecting his authority in the field, he will definitely have some negative opinions about me."

Principal Xu smiled and said, "… You're seeing the whole situation thoroughly. So you really don't care at all?"

"I really don't care what he says." Lu Zhou smiled lightly and said, "It might have impacted someone else, but it isn't impacting me."

"… Okay then, if he's intimidating you with his authority and does something out of line, you can tell me. I can't help you much with your research, but I can still help you write a couple of letters," Principal Xu said. He unscrewed his vacuum flask lid and took a sip of hot tea. He then paused for a while and said, "It's not just me, your supervisor Old Lu and the entire Jin Ling University is on your side."

Lu Zhou: "If it really comes to that, I will tell you."

"I'm relieved to hear you say this." Principal Xu nodded and said, "What I'm most worried about isn't your research going wrong, it's you not speaking up about some issue."

Lu Zhou smiled awkwardly and said, "You must be kidding, am I the type of person that will mistreat myself?"

"Okay, enough of this. I know you're not here to talk about this thing." Principal Xu smiled and asked, "Tell me, what trouble have you encountered?"

Lu Zhou put on a more serious expression and spoke.

"The reason I came to visit you today was mainly to talk about the program problems."

"Program problems? I'm decent at that." Principal Xu put down the vacuum flask and said with interest, "Let's hear it. Even if I can't solve it, I can recommend a couple of information technology academicians that can."

Lu Zhou: "It's about the control scheme for the stellarator."

"Stellarator's control scheme?" Principal Xu frowned after hearing Lu Zhou's question, and he asked, "This… I really don't know a lot about it. Can you elaborate?"

Lu Zhou nodded and explained the specific problem from an academic point of view.

In short, whether it was the tokamak or stellarator, the high destiny plasma in the fusion chambers was highly unstable, and turbulence could occur at any time.

The magnetic field that constrained the plasma was like an invisible hand, while the computer that controlled the outer field coil was like the brain. Having just the brain alone wasn't enough, the plasma changes could occur in an instant. It was impossible for people to control the computer, this could only be done by a program.

The Max Planck Institute was quite well-versed in this regard. According to the control scheme established by referencing Lu Zhou's plasma turbulence model, the operation time of Wendelstein 7-X successfully increased to 30 minutes, thus shocking the entire world.

Now that Lu Zhou's plasma turbulence model was proven correct by the Wendelstein 7-X, all Lu Zhou had to do was to prepare a reliable control scheme for his STAR machine.

The Institute for Advanced Study didn't have anyone proficient in information technology. With his scrappy programming knowledge, he could write a couple of programs, but he was way out of his league when it came to large-scale scientific research project software.

Therefore, Lu Zhou focused his attention on Jin Ling University.

Jin Ling University's computer science department was second only to the physics department. It was ranked as one of the highest in China. Plus Principal Xu himself was an academician of the Ministry of Industry and Information Technology, so asking him for help was the perfect match.

After hearing Lu Zhou's explanation, Principal Xu thought for a moment and said, "The problems you talked about, it's not just software problems, right?"

Lu Zhou was a little embarrassed as he said, "Yeah, that is the case."

This was quite shameful. As of now, not only was the STAR machine brain lacking in software, but it also had hardware problems that had to be solved.

Like building a supercomputer, this was all something that would require professionals to complete.

Professor Xu sighed and said, "Okay then, I'll gather the professors from the computer science department and form a small team. We'll help you solve both the hardware and software problem as well as the control scheme… Can I ask how much is your budget?"

Lu Zhou thought for a bit and said, "Around a billion yuan."

Principal Xu: "…"

Lu Zhou hesitated for a bit and asked, "Is it not enough?"

It's not like I'm building a Tianhe-2 supercomputer, one billion is surely enough?

Principal Xu gently coughed and said, "… Nothing, it's enough. I was just a bit surprised."

What he really wanted to say was how rich the controllable nuclear fusion industry was, but it wouldn't be appropriate to say this out loud.

They had hundreds of millions in research funding, and any research project they outsourced would be able to fund countless professors.

No wonder Zhou Chengfu was jealous.

"The computer science department here can solve the control scheme and supercomputer problem. Is there anything else?"

Lu Zhou was about to say that there wasn't anything else, but he suddenly remembered Yang Xu talking about a staff sports event thing, so he spoke.

"Oh yeah, one more thing."

Principal Xu: "What thing?"

"It's not anything important. It's just that our institute plans on hosting a sports event, but our gymnasiums are still under construction." Lu Zhou smiled awkwardly as he said, "If it's not too much of a hassle, I'd like to borrow a sports venue or something."

When Principal Xu heard this request, he replied with a smile, "That's it? Piece of cake, I'll call the academic affairs office. Oh yeah, Dean Liu was also talking to me about hosting a faculty sports event. How about we find a time to host it together?"

Lu Zhou smiled and said, "Sure, I don't mind."

The Jinling Institute for Advanced Study and Jin Ling University 1 were part of a family. Not only did they collaborate on research projects, but many researchers at the Institute for Advanced Study also had faculty positions at Jin Ling University. Having a sports event would boost everyone's morale.

Also, sports events would be boring if there were not a lot of people; it would be much more fun with more people.

Since Lu Zhou agreed, Principal Xu smiled and patted his thigh. He quickly said, "Okay then, it's ad one deal. We'll provide the venue, and you guys will take care of the prizes."

Lu Zhou: "…"

Why does it feel like…

There's some kind of strange agreement mixed into this.

Whatever, it's not like we're lacking money anyway. Jin Ling University is also known as Jin University

This was completely opposite of what Zhou Chengfu expected. He waited for a week and didn't hear anything from the STAR project team.

STAR didn't announce any new experiment plans, nor did he see Lu Zhou respond publicly to his scientific review article.

It was like…

He was being ignored…

Zhou Chengfu felt like he was being punched out of nowhere; it made him uneasy.

Originally, he thought that after Lu Zhou saw his article, even if Lu Zhou didn't reply with a rebuttal article, he would at least immediately begin the next controllable nuclear fusion experiment, in hopes of proving himself.

And regardless of which one Lu Zhou chose, it would be beneficial for him.

If Lu Zhou chose the former, he wouldn't lose to him in terms of article writing abilities. If Lu Zhou chose the latter, at least he could get an understanding of the STAR machine.

After all, he didn't know exactly what was the situation with the STAR machine. Whether it "only decided to run for one second" or "could only run for one second", he had no idea.

Even though he didn't feel optimistic about the WEGA machine, that was only a guess based on the fact that the Germans were willing to sell the machine

for €500 million. Therefore, he didn't want to say anything too controversial and absolute. At the very least, he had to be cautious with his words.

Zhou Chengfu was in his office, reading the latest issue of China Nuclear Industry News. As if he was talking to himself, he asked, "Why is this kid staying so silent?"

Jiang Liang was also puzzled. Logically speaking, Lu Zhou had no reason to take the loss.

His eyes turned as a thought appeared in his mind.

"Maybe… They really bought a piece of trash?"

Zhou Chengfu pondered for a while and said, "That could be possible. After all, the WEGA machine has been retired since 2013. Anything could have happened within these six years."

Ever since the Wendelstein 7-X project was launched, the WEGA machine was forgotten and faded out of everyone's mind. The only information about the WEGA machine was that it was still on the laboratory's list of devices.

After all, controllable nuclear fusion wasn't a popular field. The important research was basically centered around a few nuclear fusion devices that were still operational. No one would pay attention to a device that couldn't produce any research results.

And if a device wasn't able to produce theses, then no one would know what the situation of the device was.

From the very beginning, Zhou Chengfu had suspected that this equipment was defective. Otherwise, it wouldn't make any sense for the Germans to so readily agree to a sale.

After all, from his objective opinion as an insider, the price tag of €500 million was a bit cheap…

Zhou Chengfu thought for a bit.

"Let's see what happens in a few days.

"We'll wait until the end of the month."

If they really bought a 4 billion yuan piece of scrap metal, then it would be interesting…

…

While Zhou Chengfu was planning on how he should play the cards in his hands, there was a beautiful clear blue sky thousands of miles away in Jinling.

On this day, the staff of Jinling Institute for Advanced Study as well as the faculty of Jin Ling University finally met each other at their jointly held sports games.

Other than traditional track and field events, such as running, hurdling, high jump, long jump, and relay running, there were also a wide variety of ball sports, such as table tennis, football, and basketball. There were also events specifically designed to promote teamwork, such as table tennis ball relay and the three-legged race.

At the opening ceremony, the contestants raised the national flag. They were arranged by their faculty departments and shouted the oath of sportsmanship. After the principal's opening speech, this sports event finally officially began.

"Old Tang, are you fine?"

Professor Lu Fangping was warming up at the start of the hundred-meter race. He's actually been gaining quite a bit of weight over the years, but he still jokingly teased Professor Tang Zhiwei, who was standing next to him on the race track.

Old Tang heard his friend's joke and laughed. He then said, "You don't have to worry about me, just worry about yourself, and don't break your back."

Old Lu: "I'm not trying to offend you, but your posture isn't correct at all, aren't you going to warm up?"

Old Tang: "Warm up? It's only a hundred meters."

Old Lu: "Ah, don't blame me when you trip and fall."

When the referee next to the race track raised his gun, the two old professors shut their mouths and focused on the race track in front of them. They both planned to prove to each other who would be the real winner.

“Everyone…

“Get set…

“Run!”

The moment the gun went off with a bang, the professors sprinted like a couple of rabbits.

However, within two seconds, something embarrassing happened.

First, Old Tang’s shoe flew off his foot, landing a couple of meters away. Then, Old Lu, who was running behind him, saw the shoe fly off, and he fell onto the ground. He even nearly got a cramp from laughing too hard.

Obviously, being good at running had nothing to do with warming up beforehand.

Thankfully the running track was made from soft polyurethane, therefore the fall wasn’t too painful. Not to mention, Professor Lu’s beer belly helped him reduce the impact. With people on both sides of the race track cheering for him, he still stood up while wincing.

The teachers and students who were standing on both sides of the running track tried their best to cheer Old Lu on. But falling onto the ground would undoubtedly make him come last.

However, the two old professors still persevered. They stumbled to the finish line and received applause from the students and teachers.

Inside the gymnasium, there were two teams fighting on the basketball court, defending and chasing the ball.

This competition was between the Jinling Institute for Advanced Study and Jin University chemistry department.

It was obvious the ball sports were more enjoyable to watch than track and field events.

There were many more people surrounding the basketball court.

Of course, it also could’ve just been because of Lu Zhou’s presence on the court.

Some random professors accidentally gossiped in class, which ended up causing all of the students in the maths, chemistry, and physics departments to find out that the Fields Medal and Nobel Prize winner was going to participate in this sports event. This put the number of spectators on a whole other level.

However, Lu Zhou didn't pay attention to the spectators; his focus was on the basketball competition.

Over the past six months, he had been busy with research. He hadn't exercised this intensely in a long time.

As for how many shots he landed…

That wasn't important.

Playing basketball was more about having fun.

After all, everyone was bad at the game.

Besides, he knew that the reason why there were so many people watching him and cheering him on wasn't because of his skillful basketball techniques.

What was the real reason?

Was that really a question that needed to be answered?

Obviously it was because of his handsomeness…

A couple of chemistry students stood on the edge of the basketball court while watching the game. They began to brag to each other.

"Whenever our new lecturer on computational materials talks about the Theoretical Model of Electrochemical Interface Structure, his PowerPoint presentation would show a photo of him and the Nobel Prize laureate. The main thing is that he's in the background of the photo, and you can only see half of his face. I think it might even be photoshopped."

"Bro that's nothing. Every class, our experiment professor will talk about how useless we are and brag about how nutty God Lu was when he was our professor's assistant."

"Is it Professor Li?"

“Of course!”

“He probably just wants to show off he had a Nobel Prize laureate as his assistant.”

“Sigh, what’s the point? These professors just brag to us undergrad students all day.”

Suddenly, they heard a jarring voice from the crowd behind them.

“Ah, what are you guys talking about?”

The students turned their heads and saw Li Rongen with his hands behind his back as he smiled at them.

It was like the students saw a ghost, and they turned around as they scattered away.

Chapter 503: I Didn't Expect You to Be Very Popular

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Break time.

Qian Zhongming sat on the side of the basketball court. He gasped for air and looked at Lu Zhou, who was sitting next to him.

“I didn’t know you can play basketball.”

“I can do a lot of things.” Lu Zhou smirked and wiped the sweat off his forehead with his collar.

Suddenly, someone handed him a bottle of Gatorade.

Lu Zhou looked over and saw a familiar figure standing there.

“I-I saw you were sweating a lot, so I bought this for you.”

When Han Mengqi looked at Lu Zhou in his basketball clothes, her cheeks felt a little warm.

Up until now, she always thought of him as a trench coat in the winter, t-shirt in the summer kind of guy.

This was her first time seeing him like this.

Without hesitating, Lu Zhou took the bottle of Gatorade from her and said thanks.

“Thank you.”

“You’re welcome.” Han Mengqi’s ponytail swung like a squirrel’s tail, and she threw away her strange fantasies as she raised her fist. “You got this, Master!”

“Oh, thanks!”

Seeing how energetic she was, Lu Zhou’s strength recovered quite a bit. He smiled and shouted with her.

But speaking of which, she was in the chemistry department, right?

Is it really fine for her to cheer me on?

While he was thinking about this problem, Han Mengqi already left with a blushing face.

When Lu Zhou placed the half-finished bottle near the basketball hoop, he noticed Brother Qian looking at him thoughtfully. Lu Zhou was feeling kind of suspicious by it.

“What?”

“… Nothing.” Qian Zhongming adjusted his glasses and said, “It’s just a bit surprising, I didn’t expect you to be this popular.”

Lu Zhou: “I’m popular?”

Qian Zhongming asked seriously, “Are you not?”

“… A bit.” Lu Zhou looked at the students cheering him on and scratched his head. He then said awkwardly, “Probably because I’m so handsome.”

Qian Zhongming: “…”

The final competition score was 52:37, the winner was the Jinling Institute for Advanced Study.

Lu Zhou played his heart out in this competition.

The only unfortunate thing was that in the second half of the game, Brother Qian, who was the point guard, didn’t pass him the ball at all.

Is Brother Qian jealous of me?

…

The chemistry department wasn’t the only one that lost.

Over the next three days, the Jinling Institute for Advanced Study overcame all of the obstacles and successfully won the championship.

However, Lu Zhou was carried by his team…

At night, when the sports event ended, several teachers from the sports department gathered at the top floor of Jin Ling University cafeteria. They were giving out award certificates and prizes to the first, second, and third place winners.

The prizes weren’t extravagant; the individual competition gold medalist won a watch worth tens of thousands of yuan, and the silver medalist won a phone worth less than ten thousand yuan. As for the team competition, everyone got their share of the prize money.

The award ceremony was lively. However, Lu Zhou, who was holding a trophy on stage as he represented his teammates, didn’t feel a sense of accomplishment at all.

After all, the Institute for Advanced Study had a huge age advantage. It wasn’t easy for the Jin Ling University departments to assemble a team with an average age of around 35 years old. It wasn’t like they could only send the young school counselors, they had to let the old professors participate as well.

Also, the most important thing was that the prizes were coming out of Lu Zhou’s pocket, which made it even more boring for him.

“The International Controllable Nuclear Fusion Conference is in Los Angeles next month. Do you plan on going there?”

Professor Yu Jinsong asked Lu Zhou this question when they were at the dinner table.

Professor Yu was one of the few plasma physics professors at the Jin Ling University physics department. He was doing a collaborative research project with the STAR Stellarator Research Institute on plasma reactions inside the stellarator reactor.

Not just that, but he also played the role of a technical adviser for the group of software experts established by Jin Ling University for the STAR machine control scheme and supercomputer equipment.

When Lu Zhou heard him talking about this topic, he smiled and said, “I might be attending, why?”

The International Controllable Nuclear Fusion Conference was regarded as the highest level academic conference in the entire nuclear fusion field.

It was organized by the International Atomic Energy Agency, which was headquartered in Vienna. The conference aimed to provide a platform for scholars in the field of controlled nuclear fusion, as well as for those greedy industry folks who were interested in commercial fusion reactors… Actually “greedy” would be the wrong adjective. It should be those who were “brave” enough to embrace the future and provide investment for research and development.

After all, any great cause couldn’t be carried out without money.

Lu Zhou obviously didn’t want to miss an opportunity to communicate with his peers.

Also, he could use this opportunity to put an end to his work at Princeton.

Professor Yu Jinsong smiled and said, “Here’s the thing, two of my students signed up for this conference. However, I’m caught up in some matters, so I can’t go. If you’re not busy, I’m wondering if you could take care of them?”

This didn’t sound like a big deal, therefore Lu Zhou agreed to it.

“Sure, they can come with me.”

Professor Yu toasted Lu Zhou and said, “Then thank you so much.”

…

The dinner lasted until nine o’clock at night.

Lu Zhou was fed quite a lot of alcohol. Even though his alcohol tolerance was pretty good, thanks to the system strengthening his metabolic capacity, he still stumbled a little when he walked outside.

Wang Peng was standing outside next to a car with their national flag when he saw Lu Zhou stumbling out of the main cafeteria entrance. He just finished smoking his cigarette, so he threw the cigarette butt into the trash can.

He had driven Lu Zhou for a long time, so he knew Lu Zhou didn’t like the smell of cigarettes. Every time he had a craving for a cigarette, he would smoke when Lu Zhou wasn’t around.

Lu Zhou sat in the passenger seat and put on his seatbelt before he casually asked a question, “Did you eat?”

Wang Peng smiled and said, “I already did. Where to?”

“Zhongshan International.”

“Ok.”

He started the car engine, and soon, they were on the way out of the university campus.

Lu Zhou, who was sitting in the passenger seat, pinched his eyebrows. He felt his phone in his pocket vibrate, so he took it out and glanced at his screen.

Unsurprisingly, Xiao Ai was harassing him again.

Xiao Ai: [Master, you have a new mail. Are you buying a supercomputer? I’m so happy! (/≧▽≦)/♡]

Lu Zhou resisted the urge to fall asleep. He yawned and typed.

[You read my email?]

Xiao Ai: [Hey! Didn't you say Xiao Ai can read it? (°△°)]

Actually, I think I did say that.

After all, this thing feeds on information, and it won't grow without eating.

Lu Zhou thought for a bit and typed.

[I do have plans on buying a supercomputer… But that thing is very expensive, and it's for the fusion machine, so don't even think about it.]

Xiao Ai: [But I can help you. (o_o)]

Lu Zhou's fingers rested on the screen. He then typed hesitantly.

[You can help me?]

Xiao Ai: [Yeah! I don't know what exactly I should do, but my learning abilities are very strong! (^.^)]

Lu Zhou looked at the stupid emojis and wasn't convinced at all.

However, keeping Xiao Ai on standby wasn't a good idea either.

If it was possible, he'd rather find a way to utilize Xiao Ai.

Lu Zhou looked down and thought for a bit.

"… I'll think about it."

Wang Peng, who was holding the steering wheel, suddenly heard this come out of nowhere.

"… Think about what?"

"Oh, nothing…"

Lu Zhou burped, and it smelled like alcohol. He leaned back in his seat, closed his eyes, and began to think.

Should I do it?

It's worth considering.

Lu Zhou had always been cautious toward Xiao Ai.

Even though he had researched its core software, to this day, there were still many things that he didn't fully understand.

After all, this wasn't some advanced technology that he invented himself; it was given to him by the system.

He still didn't know if there were hidden dangers inside of Xiao Ai.

However, Lu Zhou decided it was worth a try.

If Xiao Ai really could be of use, it would undoubtedly be a huge helping hand for him.

However, his information science level was at the bottom of all his disciplines.

But he believed that it was one of the three pillars of modern science. As his research continued to dive deeper into the unknown, the scope of his research would continue to expand. The value of information science would gradually unfold.

A few days after the faculty sports event, Lu Zhou tidied up the collected data from the STAR machine's last experiment. He also arranged assignments for his researchers and began to prepare for his Los Angeles trip.

Professor Li Changxia was going with him to the International Controllable Nuclear Fusion Conference, since he had to do a report at the conference. Manager Sun Chengwu and Chief Engineer Cao from Baosheng Group were going as well.

The reason why Manager Sun and Engineer Cao were going was simple, it was obviously to develop their international market.

Of course, other than these three, there were also two PhD students that were going with Lu Zhou.

The day before the departure, Lu Zhou went to Jin Ling University to sort out some matters. He also went to the physics department and met Professor Yu Jinsong's two PhD students.

"You guys are?"

“I’m Fei Jingti.”

“I’m Dian Cili.”

One is called amorphous solid, one is called electromagnetic force. [1]

When Lu Zhou heard these two names, he couldn’t help but ask, “Do you guys have a friend called Ning Jutai?” [1]

Brother Dian and Brother Fei paused for a second and looked at each other before smiling awkwardly.

“… We don’t have a friend named that, but we do have a friend who is still studying for a master’s.”

Lu Zhou: “What is his name?”

Fei Jingti said awkwardly, “Liu Ti.” [1]

Lu Zhou: “…”

…

Lu Zhou didn’t care whether or not Professor Yu had a weird thing for physics sounding names. He still arranged a time and place with Brother Dian and Brother Fei to meet up for departure.

This year’s International Controllable Nuclear Fusion Conference would be held on July 1st. The location was at the InterContinental Hotel in downtown Los Angeles. In order to have more time, they decided to leave two days in advance, departing on June 29th.

On the day of departure, the squad first flew to Shanghai before transferring from Shanghai onto a plane heading toward Los Angeles.

As soon as Engineer Cao got on the plane, he immediately closed his eyes and began to nap.

“I hate flying.” Fei Jingti looked at the ground gradually becoming smaller, and he shivered as he said, “I feel unsafe when I’m this far away from the ground.”

Dian Cili, who was sitting next to him, mockingly said, “Don’t worry, from a statistical point of view, the probability of you falling from the sky is much lower than the probability of you winning the lottery jackpot.”

Fei Jingti argued, “But from a quantum mechanics perspective, you can’t rule out any possibility until the plane is re-observed by a ground radar station.”

“That’s not how quantum mechanics works. You two go take a break, don’t jinx it for us.”

Lu Zhou, who was sitting beside them, couldn’t stand listening for any longer. He couldn’t help but interrupt their argument.

Talking about a plane crash on an airplane wasn’t a good thing.

Just now, he noticed many passengers looking at them with dissatisfied expressions.

Since Lu Zhou said this, the two blabbers immediately realized their mistake and shut their mouths.

Suddenly, the white guy sitting next to Lu Zhou asked in a poor Chinese accent, “You guys are going to the academic conference?”

Surprised, Lu Zhou looked at the old man and asked curiously, “How did you know?”

“Because I often attend academic conferences. Plus I know a little bit of Chinese, so I listened to your conversation,” the old man said with a smile. “I hope you don’t mind me asking, I’m just curious… Are you guys physics researchers?”

Lu Zhou smiled and said, “My colleagues are physics researchers, I’m a mathematician, I only know a bit about physics.”

Li Changxia: “…”

Fei Jingti: “…”

Dian Cili: “…”

Since Professor Lu said he only knew a bit about physics…

Then did that mean that they knew nothing about physics?

Manager Sun, who hadn't said anything, touched his forehead and smiled as he said, "They're the researchers, I'm just a layman. I know a bit about high school physics, but for anything bachelor's and above, I'll leave it to the researchers."

The old man smiled and said, "That's all good, I'm a researcher, but I'm also a layman. I know a bit about condensed matter physics, but my research is mainly focused on materials science. What about you guys?"

Professor Li Changxia: "Plasma physics."

The old man nodded and said, "I've heard about it before, it's a very esoteric field."

Meeting someone from academia while being on a plane was improbable.

Flying was boring, and it was a bit too early to start fixing their sleep schedule. Therefore, they began to start chatting.

According to the old man, a few days ago, he went to an international materials science conference in Shanghai, and he was now on the way back to America.

Lu Zhou felt like this person looked familiar, so he asked with a smile, "Can I ask what your name is?"

"Moungi G Bawendi." Professor Bawendi smiled and asked cheerfully, "What about you?"

When Lu Zhou heard this name, he paused for a second.

Bawendi?

This is such a coincidence, how did I bump into him?

"… Lu Zhou."

When Bawendi heard Lu Zhou's name, he was stunned and surprised by it.

"Lu Zhou? You're that Lu Zhou? This is… This is such a coincidence."

Lu Zhou smiled and said, “What a coincidence, I didn’t expect to bump into you here.”

Professor Li Changxia: “You guys know each other?”

Lu Zhou nodded and said, “Kind of, but we only communicated through work. This is our first time meeting in person.”

Lu Zhou remembered a long time ago, when he was still doing his bachelor’s degree at Jin Ling University, Professor Bawendi was his thesis reviewer.

Lu Zhou still remembered that the thesis was about computational materials.

Back then, the entire computational materials field was a new discipline that was quite unpopular. But a few years later, this new discipline began to become more and more popular in the international scientific field. It became much easier to fund a thesis reviewer.

During the flight, Professor Bawendi and Lu Zhou talked a lot about materials science.

Especially the carbon nanomaterials field, which they were both familiar with.

During their conversation, Bawendi began to talk about the recent development of carbon nanomaterials research.

“… I don’t know if you’ve been paying attention to the IEEE International Electron Devices Meeting. A few months ago, at the conference, Professor Banerjee from the University of California, Santa Barbara, reported their latest research on carbon interconnection technology.”

Lu Zhou: “Carbon interconnection technology?”

“That’s right.” Professor Bawendi smiled and said, “Simply put, they designed a computer chip and replaced the copper in the chip with a carbon-based nanomaterial. I heard IBM is interested in their research. This is a very trendy research direction. I can bet that after you read their thesis, you’ll be interested.”

Using a carbon nanomaterial for computer chips?

This does sound interesting.

Lu Zhou connected this to his recent breakthrough in SG-1 wire synthesis and suddenly looked interested.

“This does sound interesting, if I have the time, I’ll pay attention to it.”

The two talked a lot during the flight.

Because there was someone Lu Zhou could discuss academic problems with, even though the flight was tedious, he didn’t think it was boring.

After a dozen or so hours of flight, the airplane finally landed on the Los Angeles airport runway.

After Professor Bawendi and Lu Zhou walked down the airstair, they shook hands and bid farewell.

“If you have the chance, you can come to visit me at the Massachusetts Institute of Technology. Goodbye.”

Lu Zhou shook Professor Bawendi’s hands and smiled as he said, “Have a nice trip. If you ever come to Jinling, you can also visit me at Jin Ling University.”

After they parted ways, Lu Zhou found two taxis outside the airport. The squad went straight to the InterContinental Hotel, which was where the meeting would be held.

Lu Zhou walked through the hotel lobby and was about to walk toward the elevator.

Suddenly, he heard a voice come from the side.

“Hello, are you Professor Lu?”

Lu Zhou stopped walking and looked at the person who asked the question.

“Who are you?”

“Mihir Benderbauer, chairman and chief technology officer of Tri Alpha.” Benderbauer reached out his right hand to Lu Zhou and said with a smile, “It’s nice meeting you here.”

Tri Alpha?

Lu Zhou raised his eyebrows.

He had obviously heard of Tri Alpha, one of the biggest companies in the controllable nuclear fusion field.

It was a privately owned commercial controllable nuclear fusion company. The parent organization behind this company was Google, the company with a “clean energy complex”.

In order to speed up the experimental progress of Tri Alpha’s C2-U machine, Google utilized its advantage in software engineering and tailored a specific “Optometrist Algorithm” for them. This algorithm used a stochastic perturbation method combined with the human choice to generate the plasma required for the nuclear fusion experiment in a much efficient manner.

Google wasn’t the only nutty one; Tri Alpha itself was also very competitive. The company independently developed a “field-reversed configuration (FRC)” machine. The outside of this machine looked like a long cylinder with several small cylindrical chambers inside the cylinder. This machine could increase the plasma temperature much more efficiently than conventional microwave heating.

There was no doubt that the Optometrist Algorithm and the field-reversed configuration machine were considered advanced technologies in the controllable fusion field.

However, Lu Zhou always felt like they had put their attention and focus on weird places.

After all, neither an advanced human-computer interaction algorithm nor a faster way to increase plasma temperature was a difficult bottleneck in the controllable nuclear fusion field.

Lu Zhou shook his right hand and said, “It’s nice meeting you too… Do you want something from me?”

Benderbauer smiled and said, “Can we talk in private?”

Lu Zhou looked at Professor Li Changxia and gave his suitcase to him.

“Sorry to bother you.”

Professor Li Changxia smiled and said, “It’s fine, I’ll head upstairs first.”

Lu Zhou: “Okay, I’ll be there in a sec.”

Lu Zhou followed Benderbauer and walked to a cafe next to the hotel.

After they found a quiet place to sit down, Benderbauer picked up a menu.

“Do you want anything?”

“A mocha is good.”

“One mocha and one black coffee, please.”

“Okay, sir.” The waiter quickly wrote down their order on a notepad and left while taking the menus with him.

The coffee soon arrived at their table.

Lu Zhou looked at the coffee on the table and leaned back against his chair. He then asked, “Now, can you tell me what you plan on talking about with me?”

Benderbauer placed his interlocked fingers on the table and looked at Lu Zhou with interest. “I heard you’re interested in nuclear fusion research?”

Lu Zhou nodded and said, “Yeah, it’s a very challenging and meaningful research project.”

Benderbauer: “Can I ask if it’s spiritually meaningful or financially meaningful?”

Lu Zhou: “What do you mean?”

“Exactly what I just said.” Benderbauer took a sip of coffee, the bitterness made him pucker his face. He dropped two sugar cubes into his cup and looked at Lu Zhou as he said, “If it’s the latter, why don’t you consider working with me?”

“Oh yeah?”

“Whether it’s a billion or two billion USD, that’s other people’s money. It’s not yours. If we join forces, we can expand our company and then go public. 10 billion, or 100 billion, it’s all possible.

“What do you think about my proposal? Mr. Genius Professor Lu, youngest Nobel Prize laureate in history,” Benderbauer had a smile on his face as he said, “I can promise you, you will have at least 5% equity, and its value will far exceed your imagination.”

Is he…

Trying to get me on his side?

Lu Zhou smiled and shook his head when he heard this request. He put down his cup of coffee.

“I originally thought you were planning on talking about the FRC device.

“Thanks for your coffee, but also no thanks. I can’t help you.”

Benderbauer obviously didn’t expect Lu Zhou to refuse so swiftly, so he paused for a second.

He saw Lu Zhou stand up and couldn’t help but ask, “… Why?”

Lu Zhou shook his head and said, “There’s an old saying in Chinese, those who have different beliefs shouldn’t work together.”

Benderbauer was astonished. He looked at Lu Zhou and asked in disbelief, “Don’t tell me… You’re actually planning on achieving nuclear fusion?”

Lu Zhou: “Why don’t you ask the researchers in your company this question? I’m sure they’ll give you a more reliable and rigorous response from a professional’s perspective.”

“I don’t talk about this problem with them, it’s meaningless. Their answer is always the same.” Benderbauer shook his head and said, “Anyone betting on ten years in the future is a genius, anyone betting on twenty years is a dumb*ss.”

Lu Zhou smiled and replied, “What a coincidence, my answer is the same.”

…

1st of July.

The International Controllable Nuclear Fusion Conference officially began.

On the first day of the conference, Dian Cili and Fei Jingti ate their breakfast and came to the lecture hall yawning. They walked into the first conference seminar and found a seat in the back row.

Their supervisor, Professor Yu Jinsong, couldn't come due to some urgent matters. Therefore, before they got here, Professor Yu Jinsong assigned them some special tasks. Not only did he specify which seminars they had to attend, but he also asked them to make detailed notes about the seminar.

Therefore, they couldn't just goof off at the conference as usual.

The seminar report soon began.

The person on stage was Professor Botham from the Culham Centre for Fusion Energy. His report was on a plasma interaction experiment discovery.

The pair took out their notebooks. Regardless of whether or not they understood the seminar, they still felt like they should take notes of the important parts.

When the seminar was halfway done, Fei Jingti's eyelids were feeling heavy, and he suddenly lowered his voice as he said to his friend, "Over the past six months of reading theses, I discovered something very interesting."

Dian Cili: "What?"

Fei Jingti: "If you explain a very easy concept using academic terminology, you can confuse anyone."

Dian Cili: "Like what?"

Fei Jingti: "Just like so-called 'trivial' content we find in theses. Maybe the author of the thesis only meant that the laboratory person who was responsible for checking the thesis thought it's 'trivial'. Or sentences like 'according to our statistically-based predictions', which basically means, 'we just made an estimate, don't take it seriously'."

Dian Cili: "Can you give a more specific example?"

Fei Jingti: “A more specific example? Like the thesis you’re holding right now, look at the last few lines. ‘We hope our research can motivate scholars to explore more deeply into this field…’”

Dian Cili was curious. “What does that mean?”

Fei Jingti: “It means that I’m done, whoever else wants to do it, can continue doing it. I’m not doing it.”

“Pfft…”

Dian Cili huffed out a quiet laugh and slammed his forehead on the table.

Fei Jingti was muddled, and he glanced at him.

Does this guy really find it that funny?

Professor Botham was standing on stage with his back turned against the blackboard, which was full of calculations. He spoke in a warm and slow voice.

“… We used a high-order harmonic XUV generated by a high-intensity laser and plasma interaction to measure the structure of plasma with a high image resolution.

“As shown in the PowerPoint, we received a very interesting data set from the observations and derived a series of conclusions based on these results.

“This involved a multi-scale analysis of non-linear growth and compressed turbulence… It’s not an easy task to solve. Fortunately, we have produced in-progress results.”

There was a commotion in the audience as the scholars and experts whispered to one another.

“… If the Culham Centre for Fusion Energy really solved this problem, then it will provide a theoretical basis for solving the magnetic surface tearing problem in the tokamak.”

“I can’t believe it… Do you think their data is reliable?”

“I don’t know, I’ll have to do my own research.”

Professor Botham was satisfied with the chatting going on around him, and a smug smile appeared on his face.

Just like he had expected, their research results were amazing enough to surprise people.

It was soon the Q&A session.

Professor Botham looked at the first person with their hand raised and nodded.

“Sir, do you have a question?”

Lu Zhou stood up and looked at the calculations on the blackboard. He then opened his mouth and spoke.

“If my guess is correct, you used a differential geometry method to solve the nonlinear equations.”

Professor Botham adjusted his glasses and looked at the Chinese scholar. He then frowned and said, “That’s correct, is there a problem?”

Lu Zhou sighed and said, “Integrating the L Manifold to solve the nonlinear topology transformation like this is incorrect. Your method is wrong, you can’t use the L Manifold like this.”

Botham wasn’t angry at the fact that he was being questioned. Instead, he laughed.

He then replied in a sarcastic tone, “I don’t know how you came to this conclusion. But in my opinion, it is nonsense. There are no problems in my calculations, I know exactly how to use the L Manifold. I don’t need you to teach me.”

The scholars caused a ruckus in the lecture hall.

Lu Zhou looked at the crowd in the venue and coughed.

“I’m the one who created the L Manifold.”

Chapter 506: Useless Notes

Immediately after Lu Zhou said that sentence, the lecture hall went quiet for a few seconds.

This was followed by a commotion in the lecture hall.

Lu Zhou could clearly hear a tint of quiet laughter buried in the conversations.

Obviously, when he said that he was the one that created the L Manifold, many people recognized his identity.

There were also a lot of people that were confused, and these people were waiting patiently for the situation to unfold.

After all, not everyone would know about the "trivial content"; it was only specifically for those who had read the relevant literature.

It wasn't easy for most scholars to read all of the papers in their field, let alone reading research papers in other fields.

Unless someone studied differential geometry and partial differential equations in-depth and did their research on the proof of the existence of a smooth Navier–Stokes equation solution, then they likely didn't know what the L Manifold was.

Not to mention that it had been less than a year since the Millennium Prize Problem Navier–Stokes equations were solved.

Of course, since Professor Botham's research was in this field, he knew quite a bit about the L Manifold. He obviously knew who the inventor of the L Manifold was.

But even so, it was difficult for most people to remember a face from a foreign country.

Forget about a foreign Nobel Prize laureate, he didn't even recognize his own country's Nobel Prize laureate!

It wasn't like there were photos attached to the papers…

Professor Botham's wrinkly face turned red, and he stared at Lu Zhou for a long time and couldn't say anything.

You're just a mathematician, what the hell do you know about the L Manifold… I obviously can't say this.

He took a deep breath and decided to bite the bullet.

"Where was I wrong?"

To be honest, he didn't think he was wrong.

After all, before going on stage, he had gone over his thesis numerous times.

And no matter how many times he checked, he was convinced that his calculation process was perfect.

Botham clearly didn't admit his mistake.

Lu Zhou sighed.

"Can I use the blackboard?"

Even though Professor Botham wasn't convinced, he still made a gesture of invitation.

He was already being humiliated, so he should try to appear generous.

Professor Botham watched Lu Zhou walk toward the stage. He stared at Lu Zhou expressionlessly as he comforted himself in his mind.

On the other hand, under the gaze of the scholars, Lu Zhou walked onto the stage.

He picked up an eraser from the multimedia lecture station. He looked at the blackboard and began to contemplate for a moment. Then he began to erase the middle part of the blackboard.

Lu Zhou didn't notice how stiff Professor Botham was. After he erased the blackboard, Lu Zhou threw the eraser aside and picked up a piece of chalk from the lecture station.

"You have a fundamental misunderstanding on the L Manifold. Differential geometry is a very effective tool for solving partial differential equations. However, it cannot be directly applied like other methods. First of all, we have to construct a bilinear operator B'…"

This type of situation was very common in the field of mathematical physics.

The rise of an interesting mathematical tool. The physicists didn't completely understand the tool but that wouldn't prevent them from using it.

Because if they were correct, they might have made a physics discovery.

If they were wrong…

Then they could at least produce a paper, demonstrating how the mathematics tool couldn't be applied like this.

Lu Zhou spoke while filling in the part he erased.

[μ(t)=e^(t△)·μ0+∫e^(t-t')△B(μ(t'), μ(t'))dt']

"We set a Schwarz divergence vector field μ0 to the equation and set the time interval I ⊂ [0, + ∞). Then define a generalized solution N5 of the nonlinear equation as an obey integral equation μ with the continuous mapping of t, ie μ→N5df(R3)…"

Professor Botham looked at the lines of calculations on the blackboard and had a headache.

Even though Lu Zhou didn't move at a fast pace, he never took a pause.

It was difficult for Botham to keep up with Lu Zhou's train of thought.

If Lu Zhou prepared all this to give him a hard time, then… whatever.

But if Lu Zhou thought of all this on the spot…

Then that would be terrifying!

Botham spent a week to prepare the content that he wrote on the blackboard earlier…

Compared to Professor Botham, the scholars sitting in the crowd were even more muddled…

In order to listen to this seminar, they spent a long time studying the thesis from the Culham Centre for Fusion Energy. But now, someone was telling them that the calculations in the thesis were wrong?!

???

Excuse me?

As expected, new physics discoveries didn't happen that easily.

Of course, other than the majority who were muddled, there were a small number of scholars who were actually listening and understanding the content on the blackboard.

These were the only people in the lecture hall that could appreciate the value of these calculations.

And for Lu Zhou, that was enough.

Lu Zhou wrote down the last line of calculations and looked at the blackboard. He briefly checked his work and nodded.

"It's basically like this.

"Even though there's no new physics discovery, this is still a very interesting phenomenon.

"I'm not well versed on the tokamak. I can't form an opinion on the magnetic surface tearing problem from these conclusions alone. However, in my opinion, due to the uncertainty of the internal current in the plasma, even if we construct a perfect external field coil, it would be difficult to control the magnetic field inside the reactor…"

Lu Zhou placed the chalk on the lecture station and nodded toward Botham. He then turned around and walked off stage.

The moment he stepped down from the lecture stage, the lecture hall was filled with tumultuous applause.

Soon, the muddled scholars stopped daydreaming and joined in on the applause.

The applause echoed in Professor Botham's ear. He watched Lu Zhou leave the lecture hall and couldn't say anything. Finally, he silently took out his phone and took a photo of the blackboard.

This made him very upset.

However, he still learned something from this seminar…

…

Dian Cili stared blankly at the calculations on the blackboard. He had totally forgotten about what notes were; he was speechless.

Who am I?

Where am I?

Whose seminar am I listening to?

Suddenly, Brother Fei, who was sitting next to him, let out a long sigh.

"Professor Lu really is nutty…"

Even though they didn't understand anything, they didn't feel too frustrated.

He was willing to bet that even if their supervisor, Professor Yu Jinsong, was sitting here, he wouldn't be able to understand anything either.

Dian Cili blankly nodded and gulped.

"Yeah…"

When he looked down at the notes that he had written, he suddenly realized a serious problem.

"Oh yeah, we just finished writing these notes…"

Fei Jingti smiled bitterly.

"They're probably useless."

In less than half an hour, their notes were proven to be wrong.

I feel bad for this British professor…

The two looked at each other, they were at a loss for words.

F*ck sake!

Why did we wake up so early for this?

Chapter 507: Comparing Technologies

What happened at the seminar was only a minor disturbance for Lu Zhou.

He hadn't done any research on the tokamak. Therefore, he obviously didn't read the thesis from the Culham Centre for Fusion Energy.

The main reason he attended this academic conference was for the "technical exhibition" segment. He woke up a bit too early on the first day of the conference, so he found his way into a random seminar, causing the previous incident.

After correcting Professor Botham's mistake, Lu Zhou left the lecture hall. He already killed quite a lot of time, so he slowly wandered to the technology exhibition hall.

Compared to the academic conference happening nearby, there was another level of liveliness in the technology exhibition hall.

What was shown at the exhibition wasn't theoretical research results. Instead, it was actual technology.

Because of this, it wasn't just scholars and researchers that paid attention to advancements in this area, but many entrepreneurs and investors interested in controllable nuclear fusion were also standing here with great interest.

Even though human civilization was still a long way from fusion energy, this didn't prevent the imaginative people from turning their heads into this untapped land.

What was interesting was that most people thought the emergence of controllable nuclear fusion would inevitably affect the profits of the energy giants. They also thought that most energy giants hated controllable nuclear fusion to the bone and wanted to get rid of nuclear fusion…

However, the truth was the complete opposite of what they thought. Many investors of nuclear fusion companies were precisely the energy giants that were seemingly on the edge of losing their profits.

For example, the famous General Fusion Company was led by the Canadian oil company Cenovus. As for the Max Planck Institute for Plasma Physics stellarator project, not only were they funded by ITER and the German Energy Agency, but part of their research project was also funded by French oil giant Total S.A.

Of course, other than those oil companies, there were also a bunch of wealthy tech companies that were equally as interested in the cool-sounding controllable nuclear fusion.

Like Google's investment in Tri Alpha.

Lu Zhou personally thought Tri Alpha might be defrauding investors. However, looking at it objectively, this private company was able to build a fusion reactor from scratch within a year. Even the famous Nobel Prize laureate Burton Richter was shocked, which meant the team at Tri Alpha had a certain amount of skills.

Professor Guo Houyang, who was the chief scientist and experiment operation director of Tri Alpha, was also a nutty Chinese scholar in the field of plasma physics. Even though his name didn't sound familiar, but this big name was in the 1996 edition of Marquis Who's Who. This was a manifestation of the academic community's recognition of him.

Because there were so many talented people entering the field, and because of the capital being invested into the field, this field was able to go from being unwanted into one of the most popular fields in academia.

Coincidentally, not long after he walked in, he saw Benderbauer, who he chatted with at the cafe the day before yesterday.

This chairman and chief technology officer of Tri Alpha was standing in front of a gray curtain. He was presenting a PowerPoint presentation, which was

about their C2-U fusion machine as well as their world-leading field-reversed configuration, to some scholars and investors who were interested in the controllable nuclear fusion field.

Even though Benderbauer's speech on stage was enthusiastic, Lu Zhou thought about what Bendebauer said to him the day before yesterday, and he felt that this enthusiasm was somewhat fake.

"Life is just like a movie, you really do need acting skills."

Lu Zhou shook his head and didn't say anything. He listened to a brief explanation of the FRC machine technology and walked toward the booth next to it.

Other than Tri Alpha, Baosheng Group also had a booth in the technology exhibition hall.

After all, state-owned companies were not the same anymore. Even though this high tech company had special subsidies from the state, they still had to worry about sales.

Otherwise, by the time they finally increased their production capacity, they might have to actually decrease their excessive production capacity.

At Baosheng Group's booth, they demonstrated their SG-1 wire technology, which they developed in cooperation with the Jinling Institute for Advanced Study, to scholars from all over the world.

Even though the Helmholtz Association of German Research Centres had also mastered this technology, this technology was still dominated by Baosheng Group due to their production cost and production scale advantages. Even though the Germans had received this technology, they still had to pass on a large number of orders to Baosheng Group due to their insufficient production capacity.

In short, when the representatives from major research institutes saw this wire, which was only a few thousand nanometers in diameter, they couldn't believe it was real.

That was until Chief Engineer Cao calmly operated the experiment equipment in front of everyone. He showed them the thermal conductivity of the SG-1

wire and the most important one—superconducting properties. The people around the booth had their eyes wide open in disbelief.

At the end of the first day of the conference, Lu Zhou originally planned on going back to his room and rest.

But General Manager Sun insisted on treating his guest. Therefore, the group found a Chinese restaurant in Chinatown and sat down around a table.

At the dinner table, General Manager Sun Chengwu raised his glass and looked at Lu Zhou.

"Professor Lu, thank you so much!

"We've secured more than US$200 million worth in orders just this morning alone!

"This toast goes to you!"

Even though a few hours had since passed, General Manager Sun still couldn't forget how the foreigners responded when Engineer Cao was showing them their SG-1 wire technology, and how shocked and astonished the foreigner experts were.

As the general manager of Baosheng Group, there was nothing more exciting than watching his own company be at the forefront of the industry…

Lu Zhou toasted with General Manager Sun and smiled as he said politely, "There's no need to thank me, you deserve this."

US$200 million in orders was a lot, that was almost 1.4 billion in yuan.

According to the current cost of the SG-1 wire, Lu Zhou roughly estimated that the US$200 million worth of wires was enough to build the outer-field coils of three medium-sized stellarators.

If it was the tokamak, it wouldn't need as many wires.

However, Lu Zhou didn't know much about the Tokamak. Therefore, he couldn't give an accurate estimate.

"What do you mean? Without your technology, we couldn't have come this far by ourselves." General Manager Sun downed his shot glass and cheerfully

said, "If Professor Lu has any more good suggestions in the future, I hope you're generous enough to share them with me!"

Chapter 508: Forecast of Carbon-Based Chips

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Even though investing in materials research was a bottomless pit, it still depended on who one invested in.

After experiencing the success of the SG-1 wire, General Manager Sun made up his mind and decided to stick with the Jinling Institute for Advanced Study.

And for Lu Zhou, since General Manager Sun was willing to ask him, he was willing to teach General Manager Sun.

This might even help Chinese companies to establish their competitiveness in the global market.

Looking at it from a practical point of view, this was also profitable for him.

Just take the SG-1 material as an example. For every meter of SG-1 wire produced by the Baosheng Group, they would have to pay patent licensing costs to Lu Zhou. Even though this wasn't as rich of an income as what the lithium batteries had brought him, it was still a considerable amount.

Lu Zhou thought for a bit and said, "I don't have much to say regarding the future direction of your company. However, since you guys already have an advantage in terms of carbon-based production, why don't you consider expanding it to your advantage?"

When General Manager Sun heard Lu Zhou, he immediately took this seriously.

"Oh? Professor Lu, do you have any insights that you want to share?"

"Not exactly an insight." Lu Zhou smiled and paused for a second. He then opened his mouth and said, "I just heard that there's a research team at the University of California that used a very interesting method to successfully synthesize a one-nanometer width, 50-nanometer length graphene

nanoribbon. So far, this research result has already attracted IBM's interest, and the industry is optimistic about it being used in the production of the next generation of carbon-based chips."

Everyone knew that 5 nanometers was the physical limit of silicon-based transistors. Once the transistor size was less than 5 nanometers, the behavior of the silicon electrons became unpredictable due to the laws of quantum uncertainty, which might even result in quantum tunneling effects. This could cause the electrons to teleport through the transistor "walls". Therefore, silicon transistors were becoming less and less reliable, and the upgrade of computer chips was becoming more and more of a challenge.

In order to face this challenge, the industry and academic community had formed a consensus. They had to find a new material to replace the traditional silicon in order to produce smaller and better performing electronic devices.

And according to the latest research results, the technical routes that were considered feasible were carbon nanotubes, molybdenum disulfide, black phosphorus, graphene, and tungsten diselenide.

Because Lu Zhou was in carbon nanomaterials research, he obviously was more optimistic about the graphene route.

And the fact was that Lu Zhou's intuition was correct. Under the conditions of the Mott insulator, the graphene had the potential to be applied as a semiconductor material in electronic devices.

Chips…

When General Manager Sun heard Lu Zhou's words, he had a headache.

Even though Baosheng Group had a fat bank account, investing in the big pit of computer chips still made him nervous.

"Professor Lu… You're not suggesting us to invest in the big pit of computer chips, right?"

Lu Zhou saw General Manager Sun's distressed facial expression and smiled as he said, "You're not in the electronics industry, so it's not realistic for you guys to develop computer chips. I just think that since we've already accomplished a few-thousand-nanometer wide graphene wire, why not try to

accomplish a few nanometers wide graphene nanoribbon? I know these are two very different technologies, but I think we have the ability to do it."

Lu Zhou was actually being serious.

When he was chatting with Professor Bawendi on the plane, he already had this idea in his mind.

Of course, right now his research was still focused on controllable nuclear fusion.

Not to mention, even if he was interested in computer chip technology, the Jinling Institute for Advanced Study didn't have talents in this area.

I'll wait until the controllable nuclear fusion project finishes before diving into computer chips.

I'm sure that by then, a lot of the problems will be solved.

General Manager Sun had a helpless expression on his face, and he shook his head.

A few nanometers wide graphene nanoribbon…

Sounds easy.

But how much is it going to cost…

…

The controllable nuclear fusion conference lasted for five days.

Lu Zhou had gained a lot over the five days.

Other than attending the interesting seminars, the advanced technologies presented by major research institutes also greatly enriched his outlook on the field.

Including Tri Alpha's FRC machine, he had purchased at least US$40 million worth of equipment.

The FRC machine was only a little faster and slightly more stable than the microwave-heating machine. It wasn't a key technological component, but it was still useful.

Other than the non-key components such as the FRC, Lu Zhou's list of purchases also included the He3 atom probe, which was considered a key component.

Speaking of the He3 atom probe, Professor Lazerson was doing well.

This former PPPL engineer had entered the industry as a technician and was now doing pretty well for himself in the plasma physics world.

With his networking skills from the time he was in academia, he knew better than anyone else exactly what kind of equipment the scholars needed. He helped to make the He3 atom probe technology even more powerful and strong.

At the closing conference dinner, when chatting with this old friend, Lu Zhou learned that his business was getting bigger and bigger. Not only was he working closely with more than 20 plasma research institutes, but he was one of the suppliers for the ITER project.

It wasn't just that. Now that the He3 atom probe technology was improved by him, the observation accuracy for high-density plasma had significantly improved.

Speaking of which, when the He3 company was first founded, Lu Zhou seemed to have invested a few million USD.

Therefore, he seemed to be one of the shareholders as well.

"I am willing to bet this is definitely one of the most successful investments you will ever make." Professor Lazerson began to chat about the past, and he smiled and said, "That few million dollars would be worth at least US$100 million. The future of controllable nuclear fusion technology is clear. I plan on going public on Nasdaq and wait for it to rain money."

Lu Zhou smiled and said, "Really? I wish you good luck."

Surprised, Professor Lazerson looked at Lu Zhou as he asked, "How come you're not excited at all?"

Lu Zhou made a helpless expression as he said, “… When you have more money than you could ever spend, if someone tells you that you’ve made another hundred million, you won’t react either. That’s how I feel about money, you must feel the same sometimes.”

Even though Lu Zhou’s hundreds of millions in dollars was nothing compared to the billionaires on the Forbes Fortune list, the thing was that Lu Zhou’s money was all in cash, which was entirely different.

Not to mention, Lu Zhou didn’t have a lot of expenses. Even though he spent quite a bit to establish the Jinling Institute for Advanced Study, not only did he make back his initial investment, but due to patent licensing fees, he had even made quite a profit.

Professor Lazerson looked straight at Lu Zhou for a while.

After a long time, he shook his head.

“… No, I don’t feel the same at all.”

…

After the conference dinner ended, the group of people returned to their hotel rooms and began to pack their bags.

Their flight back to China was tomorrow morning. In order to not have to rush in the morning, they naturally had to pack their bags the night before.

Lu Zhou found Dian Cili and Fei Jingti in the hotel corridor and reminded them.

“Tomorrow morning at 8 o’clock, you guys will take the plane with Professor Li Changxia. Don’t be late.”

Fei Jingti: “Okay, Professor… Are you not going back with us?”

Lu Zhou shook his head and smiled.

“I still have some matters to take care of, you guys go back first.”

Chapter 509: The Future Is Yours

A secluded office at the corner of the corridor, Princeton Institute for Advanced Study.

Vera's white chin was buried in between her palms as she stared at the empty seat and lifelessly slouched at the table.

It's been seven months…

Although it was common for Princeton researchers to be away from Princeton all year round, being away for such a long time made it inevitable for people to miss Lu Zhou.

Over the past seven months, she had basically taken over Lu Zhou's number theory class.

This was one of her main jobs as a teaching assistant, and because of the existence of emails, it didn't hinder her ability to teach. However, the feeling of communicating online was different from the feeling of communicating face-to-face.

She thought back to seven months ago at the Stockholm Gold Hall, it seemed like it was yesterday…

She began to daydream when suddenly, her white cheeks began to blush…

Vera's face was feeling slightly hot, and she leaned sideways and put her face on the desk.

There was almost steam coming out of her brain, and the cold desk made it better. Her mood began to get better, but it went back down again shortly thereafter.

Summer really is a season that makes people sleepy.

Vera sighed quietly and turned around, placing the other side of her face on the desk.

I'll lay here for a bit…

I just finished my work anyway.

Hardy and Qin Yue, who were sitting nearby, heard the quiet sigh. They looked at each other helplessly.

It had been half a year.

She had been like this for the past six months.

Even though they wanted to comfort her, they didn't know what to say.

Actually, anyone that paid the slightest amount of attention could tell that her feelings toward Lu Zhou was far more than just gratitude or gratefulness. It had reached a level way beyond that; it was even a type of admiration.

Qin Yue didn't know if Professor Lu knew about this.

However, when he thought about it, even if Professor Lu knew, this situation wouldn't be easy to resolve.

Whether the end result was rejection or acceptance, it would still depend on one party taking the initiative.

And with Vera's personality, if Professor Lu wasn't the one initiating, there would never be any progress.

But if Professor Lu was the one initiating…

Qin Yue stopped writing at his desk and looked toward the air conditioner at the corner of the room.

He could never imagine someone like Lu Zhou, who spent all of his time studying difficult research problems, would be interested in anything outside of research.

I don't think anything will ever come of this…

When Hardy noticed Qin Yue staring at the air conditioner, he nodded thoughtfully and said, "I think Vera is feeling too hot… How about I lower the temperature?"

Qin Yue sighed and said, "… It's fine. It's better if you don't do anything."

Honestly, Qin Yue was sometimes quite impressed at how smart Hardy was.

Suddenly, a wave of hot air came from the door.

When the office door was fully opened, a familiar figure was standing at the doorway.

The moment they saw that familiar face, everyone in the office was stunned.

"I think Hardy is right, it is pretty hot… Hey, why aren't you guys talking?" Lu Zhou looked at everyone staring at him. He then smiled awkwardly and said, "Or should I have said hello first?"

"Professor?!"

Vera's eyes were wide open as she looked at the doorway in disbelief. The moment Lu Zhou's figure appeared, Vera's beautiful pair of blue eyes regained its color.

Lu Zhou looked back at Vera and smiled as he said, "Hi, long time no see."

Hardy stood up and walked toward the air-conditioner remote.

Jerick and Wei Wen were sitting not far from the door, and they looked at each other in disbelief. Jerick quietly said, "We thought you were going to resign."

Lu Zhou: "You are correct, I actually am planning on resigning."

The second the words left his mouth, the office became quiet.

Even Hardy, who was walking toward the air conditioner, froze in place.

They went silent for a minute or so.

The first to break the silence was Qin Yue.

"… Do you plan to continue teaching at Jin Ling University?"

On the way here, Lu Zhou planned what he was going to say, but when he heard Qin Yue's question, he suddenly didn't know what to say.

He just nodded. "Yes."

Qin Yue knew Lu Zhou was going to say this, so his facial expression didn't change.

"I want to go with you."

Vera realized what was happening, and she immediately said, "I'm…"

Lu Zhou interrupted his two students and said with a smile, "There's no need for that. Even though I haven't been at Princeton for the past seven months, I can still notice your abilities. With what you guys have achieved so far, you guys have undoubtedly reached the standards set for Princeton PhDs. I don't have any reason to keep you in this office any longer… You guys should have your own office, and your own research projects."

Lu Zhou looked at Vera, then Qin Yue, and finally Hardy. He paused for a second and continued, "One of the main reasons I came back this time was to sort out your graduation."

Qin Yue went silent for a while before he asked, "Then… after I graduate, can I come to work at your research institute?"

Lu Zhou knew he would ask this, so he smiled and answered, "Of course you can, the doors of Jinling Institute for Advanced Study are always open to you… But I don't suggest you do this."

Qin Yue paused for a second and looked at Lu Zhou with a confused look. "… Why?"

"I can teach you the way to think about problems and the way to solve problems. However, the ability to think independently is something you have to practice on your own. I'm not exaggerating when I say that with your abilities, you can become a scholar in any mathematics research institute in the world. However, if you follow me, you will never reach the next step.

"The future is yours, you have to think about how you want to spend it.

"Whether you want to stay at Princeton, or return to your alma mater, or even go to Yan University, all of these options are far better than working for me."

Lu Zhou smiled and continued, "Not to mention, the reason why I taught you guys these things wasn't to make you work for me in the future. Instead, I hope you can help me spread the knowledge further."

Chapter 510: I've Thought About It for Six Months

Chapter 510: I’ve Thought About It for Six Months

Princeton Institute for Advanced Study, dean’s office.

After the cleaning lady poured some water into the plants on the window sill, she began to wipe the dust on the glass window.

She quickly completed her work and lifted her water bucket, about to walk out of the office.

When she was leaving, she looked at Professor Peter Goddard with a surprised look on her face.

Even though she didn’t know a lot about academia, this was the first time in many years that she had seen such a distressed expression on the serious old man’s face.

Of course, he only became a dean five or six years ago…

The old man full of white hair sat silently at the desk. He pushed his glasses up his nose and looked at the young man standing in front of his desk. He then sighed and said softly, “At the beginning of the year, someone suggested to include you in the team of tenured researchers at the Princeton Institute for Advanced Study. I know it’s not a good time to bring this up now, but… are you really not going to think about it?”

Research institutes such as the Princeton Institute for Advanced Study all had a small, tenured, life-long research team. This team consisted of the best scholars in the world. Even the researches that they undertook were also the most cutting-edge research in all kinds of fields.

In academia, not only did a tenured researcher position at the Princeton Institute for Advanced Study meant a guarantee of research funding and living standards, but it also meant the highest type of honor.

There were only ten tenured researchers in the mathematics department. Lu Zhou’s supervisor Professor Pierre Deligne was one of them. If Lu Zhou

continued to stay at Princeton, within two to three years, he'd become the eleventh tenured researcher.

However…

Lu Zhou shook his head and said softly, "I've thought about it for six months already."

Before winning the Nobel Prize, the resources he received in China were far less than those at Princeton. However, after winning the Nobel Prize, the resources he would have access to in China were far greater.

There was nothing wrong with calling Lu Zhou selfish. After all, whenever he did multiple choice questions, he would consider which option was the "best choice".

Since Lu Zhou said this, Dean Peter Goddard didn't say anything else. He opened his desk drawer and pulled out an application form.

"Really? Since you've already thought about it, I have nothing else to say. Princeton in the nation's service and the service of humanity… This is Princeton's informal school motto. I think your choice is correct."

Dean Peter Goddard gently placed this application form on the desk, as if he were putting down a heavy burden. He then leaned against his chair and looked at Lu Zhou.

"Other than the researcher position at the Princeton Institute for Advanced Study, there's also your faculty position at Princeton University… I'm guessing you're resigning your teaching position as well."

Lu Zhou: "Yeah, I'm going to Nassau Hall after this."

Dean Goddard smiled and said, "Remember to say hello to Professor Eisgruber for me."

Lu Zhou picked up the application form on the table and nodded.

"I will."

After Lu Zhou left Dean Goddard's office, he didn't stay at the Princeton Institute for Advanced Study for long. He immediately went straight to Nassau Hall.

Compared to Goddard's disappointed reaction, Principal Eisgruber's reaction was fairly mild and calm.

After hearing Lu Zhou's request, the principal didn't say much else. He took out a similar form from his drawer.

"… I remember more than twenty years ago, I was still an academic dean back then. Mr. Faltings found me and told me that he was going back to Germany. I also wanted to retain him, but now that I think about it, there's no need for that. This decision can't be made in a day or two, it also can't be changed with just a few words."

He adjusted his glasses and handed the form to Lu Zhou.

"Not being able to have you here is our loss."

Principal Eisgruber paused for a second and said jokingly, "So, in order to make up for our losses, I hope that while resigning as a professor, you can at least accept an honorary professor title."

Lu Zhou paused for a second after accepting the form. He then smiled and said, "It's my honor."

…

By the time Lu Zhou left Nassau Hall, the sun was already setting.

With these two application forms in his hand, Lu Zhou slowly walked back home. He even took a longer route.

His mentality was similar to someone who was traveling far away, who still wanted to stay here for a bit longer.

After all, he had lived here for so long and experienced so many things, so naturally, he had a soft spot for Princeton.

When Lu Zhou walked past Lake Carnegie, he contemplated on whether or not he should go for a nostalgic night run later. He suddenly saw a familiar figure sitting on a bench by the lake.

A smirk appeared on his face. He walked toward the vending machine and bought a sports drink and a can of coffee. He then walked toward the lake.

Molina was in a blue sports outfit, wiping the sweat off her face with a towel.

Suddenly, a drink appeared in front of her.

Molina paused for a second and looked to the side. She then saw Lu Zhou standing there.

She raised her pretty eyebrows and took the drink. She thanked him and immediately opened the can, taking a huge sip.

“You’re welcome.”

Lu Zhou smiled and sat on the bench. He opened his can of coffee and slowly took a sip.

Even though he normally likes to drink instant coffee, this type of factory-produced cold brew coffee had a special flavor.

Molina: “When did you get back?”

“I got back around noon. I wanted to come here for a run. But after I finished my errands, it was already dark,” Lu Zhou said while looking at the students running as well as the rowing team training around the lake.

Molina glanced at Lu Zhou.

“Speaking of which, you haven’t been at Princeton for half a year, right?”

“Yeah, time really flies by quickly.” Lu Zhou looked at the lake that sparkled under the sunset and said with a smile, “It feels like I just graduated yesterday, but I’m already 25 years old.”

Molina: “… I think most people graduate when they’re 25 years old.”

Lu Zhou smiled in an awkward manner and said, “I think you’re right… Speaking of which, what about you? How’s your research project with your supervisor going?”

Molina had a smug smile on her face, and she said, “I already graduated. I’m a lecturer at Princeton University now.”

Surprised, Lu Zhou looked at her and said, “Already graduated? Congratulations… I wanted to host a party to celebrate you joining the faculty, but I’ve already resigned.”

“Oh yeah?”

Molina didn’t look surprised; it was like she expected Lu Zhou to resign.

She looked at the can of sports drink in her hand and said, “So this can of drink is to compensate for that?”

“I guess, but one can isn’t enough.” Lu Zhou patted the dust of his pants and stood up from the bench. He then looked at her and smiled. “When you get the chance, come to China. I’ll take you drinking.”

Molina jokingly said, “What if I don’t get the chance?”

“Then we’ll just have to meet at some academic conferences.”

This was how their normal nightly conversations went.

There were no greetings, no farewells.

Molina looked at Lu Zhou walking away and didn’t say anything. Instead, she picked up a rock and threw it in the lake.

She didn’t have a lot of interests outside of mathematics, and Lu Zhou was just her normal friend.

But when she thought about Lu Zhou leaving, she still couldn’t help but feel a little lonely…

By the time Lu Zhou returned home, the sky was already dark.

He returned to his long-separated house. The moment he opened his door, the dust coming onto his face made him sneeze.

“I knew I should have asked a housekeeping company to clean it regularly.” Lu Zhou waved his hand around his nose and looked at the dusty doorway.

Maybe I should sleep at a hotel for tonight?

Lu Zhou thought about it for a bit and decided not to.

With the time it would take for him to get to the hotel, he would have been able to clean his bedroom.

Holding a broom and rag in his hand, he spent around an hour cleaning his bedroom and study room.

Lu Zhou leaned the broom against the wall and looked at his newly-cleaned study room. He wiped the sweat off his forehead and had a satisfied smile on his face.

“Next, there’s only one thing to do.”

He planned to finish his work for today before sleeping.

Fortunately, there was only one thing left to do.

Lu Zhou sat in front of his familiar desk and spent around half an hour writing his resignation letter.

After he looked at the completely dark sky outside his window, he put his two resignation letters into his drawer and walked toward his bedroom.

…

A special ceremony was held at the No.1 lecture hall in the Princeton Institute for Advanced Study.

After approving Lu Zhou’s resignation, Dean Goddard awarded him the title of an honorary researcher.

This title was similar to the honorary professor title at the university. It was mainly given to scholars who had made significant contributions to the research institute but are unable to continue to work here for a variety of reasons.

“You are one of the most outstanding scholars throughout the history of the Princeton Institute for Advanced Study. As your colleague, your research results gave me a lasting impression.

“Even though it’s a pity I can no longer work with you, I still hope that no matter where you are, you can continue down the road of academia.”

Lu Zhou nodded and said, “I will.”

A round of applause was heard in the lecture hall.

Lu Zhou received the certificate that symbolized the honorary researcher title from Dean Goddard.

Before this, he already had three honorary professor titles. One from Principle Eisgruber, one from Columbia University, and one from Jin Ling University.

Lu Zhou didn't deliberately collect these honorary titles. However, he was still curious whether one day, the history textbooks would dedicate an entire page for his academic titles.

After the ceremony ended, Lu Zhou planned on spending the rest of his remaining time wandering around the Princeton campus. Professor Fefferman, who previously worked on the Navier–Stokes equations with him, suddenly called out his name.

He took out a fountain pen from his pocket and said in a joking manner, "Even though Princeton doesn't have this tradition, I still want to give you something. I got this fountain pen at the International Congress of Mathematicians in Helsinki. This is my favorite one, and I'm handing it to you."

Because of the movie, A Beautiful Mind, which was directed by Ron Howard, Princeton became famous for a while. And the most talked-about quirk was probably Princeton's tradition of giving fountain pens as a way of paying tribute.

However, according to author Nasar's interview, the gift of the fountain pen was only an exaggeration from the movie director. There wasn't a tradition like that in Princeton. But after the film was aired, this custom was unexpectedly welcomed by Princeton students and teachers.

After all, for these professors, all they had in their drawers were fountain pens collected at academic conferences.

As for the International Congress of Mathematicians in Helsinki that Professor Fefferman was talking about, that was the year he won the Fields Medal.

"Thank you." Lu Zhou solemnly accepted this meaningful fountain pen and smiled as he jokingly said, "You just gave me such a valuable gift, I'd be embarrassed if I don't give you something."

Professor Fefferman smiled and said, “You definitely should give me something. Gifts should be exchanged, I think that’s a saying in Chinese.”

Lu Zhou guessed that Fefferman probably meant gifts should be reciprocated.

Lu Zhou smiled and took out a fountain pen in his pocket and handed it to him.

Fefferman took the fountain pen and looked at Lu Zhou with a surprised expression.

“I didn’t expect you to be prepared.”

“I just have it on me.” Lu Zhou paused for a second and said, “By the way, I got this from the International Congress of Mathematicians in Rio de Janeiro.”

“Oh, really? I have to take good care of it then.” Fefferman smiled and said, “Oh yeah, speaking of which, do you still have your manuscripts?”

Lu Zhou: “I have them, why?”

Fefferman: “If you don’t plan on taking them with you, I suggest you donate it to Firestone Library. Even though that old librarian seems to be a little crazy sometimes, he’s very good at preserving paper documents.”

When Lu Zhou heard this suggestion, he paused for a second.

Donating my manuscripts to the library?

He hadn’t thought about this issue before.

Originally, his plan was to give them to his students as a token of remembrance. However, now that he thought about it carefully, he decided that professionals would take better care of them.

Maybe one day, he’d want to come back and look at them.

After all, those pages were the product of his blood, sweat, and tears.

Lu Zhou was a bit uncertain as he asked, “Will Firestone Library collect those pieces of paper?”

Fefferman smiled and said, “Of course! It’s not just Firestone Library, I’m sure any museum in the world will be happy to take over those documents.”

…

After Lu Zhou left the Institute for Advanced Study, he headed straight to Firestone Library.

When he arrived there, the old man was in his pajamas, and he was taking a nap in his chair.

Even though Princeton was a place full of freaks, it was still rare to see someone wearing pajamas in a library.

Lu Zhou still remembered the last time when he came here to borrow Lyman Spitzer’s manuscripts, this old man gave him a lot of trouble.

However, even though the old man had a lot of weird traits, there was no doubt about his love for books.

Perhaps his weird personality was the reason why he did such a good job at preserving these historical documents.

When the old man saw Lu Zhou at the front door, he snorted and made a weird laugh.

“You’re here?”

The old man’s uncanniness could scare people that were coming to borrow books. Lu Zhou sighed and said, “It’s been so many years, do you not plan on changing your style? Not to mention your eerie smile.”

“What’s the matter, who cares what an old a*s man wears?” The old man smiled and reached for his crutches. He stumbled while standing up. “Not to mention Princeton is full of geeks and freaks, so I’m one of the normal ones.”

No, you’re probably one of the least normal ones.

Lu Zhou silently complained in his mind.

“When do you plan on retiring?”

The old man smiled. “Retiring? It’ll be the day they put me in a coffin.”

Lu Zhou heard this and looked at him in surprise.

“I thought someone your age would avoid the word coffin.”

“Why should I avoid it? Will I avoid death by avoiding the word? We all grow old, but our wisdom and knowledge will be left for future generations.” The old man looked at Lu Zhou with turbid eyes as he smiled and said, “Alright, tell me, are you here to borrow books or are you here for something else?”

Lu Zhou: “I plan on returning to China.”

The old man nonchalantly said “Oh” without any other reaction.

After all, he was only responsible for this library. As for the staff changes in the Princeton Institute for Advanced Study and Princeton University, that wasn’t within his scope of concern.

Lu Zhou thought about what he was going to say and said, “When I was cleaning the house, I found a bunch of manuscripts. Some are related to Goldbach’s conjecture, some about the Navier–Stokes equations, and they might take a while to organize them… What I’m trying to say is, are you interested in keeping them?”

When the old man heard Lu Zhou was planning on donating the manuscripts to Firestone Library, he finally looked interested.

“Of course, this is a treasure of civilization. Give them to me, I’ll take good care of them.”

Lu Zhou smiled and said, “The future generations will judge whether or not it is a treasure. I just think it’s a hassle bringing all of them back, and they probably won’t fit in my suitcases. Also, if I come back one day, I hope they will remain in the same condition.”

The old man smirked and said, “Don’t worry about that. Just like how you’re an expert in mathematics, I’m an expert in document preservation.”

“Really? I’m relieved.” Lu Zhou paused for a second and said, “Oh yeah, by the way, if I borrow my own manuscripts, do I still have to swear to the Bible?”

However, the old man didn’t find this humorous at all.

He replied seriously, “What foolish things are you talking about? This is the treasure of humanity. The moment you completed them, they no longer belong to you.”

It had been two days since he donated his manuscripts to Firestone Library.

Lu Zhou contacted a local house cleaning company and cleaned his entire house.

On the third day, he sent an invitation to his Princeton supervisor, friends, and professors to a party in his backyard.

One reason was to say goodbye to Princeton.

The other was to congratulate his students on successfully graduating.

Other than Professor Deligne, Dean Goddard, Fefferman, and Edward Witten, almost half of the Princeton mathematics and physics tenured researchers were all at this party as well.

Because Lu Zhou was pretty sociable, he had a good relationship with most of the people he interacted with.

Because of this, after hearing he was going to leave, a lot of people tried to persuade him to stay.

“… I still remember twenty years ago, when I heard Faltings was going back to Germany, I nearly laughed out loud in my lecture. But my friend, when I heard you were leaving, I felt sorrowful.” Peter Sarnak toasted Lu Zhou, and his words were full of pity.

He was the former editor-in-chief at Annual Mathematics as well as a big name in the number theory field. When he was still at Annual Mathematics, he was one of the reviewers for Lu Zhou’s Goldbach’s conjecture thesis.

Comparing him to Faltings, Professor Sarnak respected Lu Zhou’s humbleness the most.

Even though Sarnak had a pretty good relationship with Faltings, that didn’t excuse Faltings’ arrogance.

Even though there was no chance to prove it in person, but Lu Zhou believed that there was a reason behind the famous line in mathematics—"You are better at chess, but I'm a better mathematician."

Deligne: "You plan on going back?"

Lu Zhou: "Yeah."

Unlike other people, Deligne didn't try to persuade Lu Zhou to stay. He paused for a second and simply said, "My supervisor… The letter Mr. Grottendick gave you, do you still have it?"

Lu Zhou: "Of course I have it."

Deligne nodded and said, "Don't lose it. If you don't need it, give it back to me."

Lu Zhou gently coughed and said, "… How could I possibly lose it…"

It was quite unfortunate. Even though Lu Zhou was involved in many branches of mathematics, he hadn't made any major research results in the most important branch—algebraic geometry.

Maybe one day, when Lu Zhou needed Grottendick's wisdom, he'd take a trip to France.

But now was not the time.

Deligne stared at Lu Zhou for a while and said, "I've taught many students, some are talented, some are extremely talented. If I had to rate, you're the most talented mathematics scholar I have ever seen, but you're also the most difficult to understand."

"Regardless, I hope you don't waste your talent. No matter what kind of research or work you do, I hope you can continue down the road of mathematics."

Lu Zhou nodded happily.

"I definitely will."

…

All good things had to come to an end.

As the sun began to set, the farewell party came to an end.

Over the next two days, Lu Zhou's students successfully received their diplomas and degree certificates. Before returning to China, Lu Zhou took this time to help them prepare for their further path in education or future jobs.

Actually, he didn't even need to help them; his students were all excellent.

Like he said, no matter which mathematics research institute or university, there wasn't a place on earth that would reject their résumés.

Finally, due to Lu Zhou's advice, Wei Wen decided to do a PhD under Edward Witten. Witten gladly accepted this potential-filled student. Even though this supervisor's reputation gave Wei Wen a lot of pressure, he still accepted this challenge.

As for Jerick, he didn't stay in Princeton. Materials science wasn't Princeton's strong specialty, so it was very difficult for him to take his computational materials science to the next level here. Therefore, with Lu Zhou's advice, he chose to go to MIT to study a PhD.

As for the three graduated PhDs, they all decided to stay at Princeton.

Like this, all of Lu Zhou's worries were solved. He could finally relaxingly embark on his journey back home.

Lu Zhou spent a few hours packing up his things. He then carried his suitcase downstairs and sat in his Ford Explorer, which was parked in his driveway.

Qin Yue was in the driver's seat.

Normally, when Lu Zhou went to the airport, Jerick was the one that drove him there.

However, this time, Qin Yue offered to drive, and Lu Zhou obviously didn't refuse.

Qin Yue drove his Ford Explorer to the airport.

After they got off the car, Qin Yue walked to the back of the car and took out the suitcase from the trunk.

Lu Zhou took the suitcase from his former student's hands and nodded toward him.

"Thank you."

Qin Yue: "You're welcome, this is the least I could do."

Lu Zhou smiled and was about to bid farewell to his student.

However, he suddenly remembered something. He put his hands into his pocket and took out a keyring with a bunch of keys on it.

"Oh yeah, I nearly forgot something… Take this."

Qin Yue looked at the keys that were thrown in his hand and paused for a second.

"… What is this?"

"The keys for my house." Lu Zhou smiled and said, "I probably won't have time to come here, and I probably won't get to live here anymore. You're moving out of your student apartment soon, right? I'm guessing you haven't found a place to live yet. Take care of my house please."

Qin Yue stared at the keys in his hand for a bit and suddenly asked, "Can you tell me your bank account number?"

Lu Zhou: "What?"

Qin Yue said in a serious tone, "So I can pay the rent."

"There's no need for that." Lu Zhou shook his head and said, "I don't need that money anyway. Just help me clean the house. Oh yeah, try not to touch my study room and fireplace. Even though I don't know when I'll be back, but I still hope those two places will remain the same."

Qin Yue nodded seriously and remembered Lu Zhou's words.

"I understand, sir."

Qin Yue didn't stay at the airport for long. After he bid farewell to Lu Zhou, he got back in the car and drove out of the airport.

Lu Zhou watched as his Ford Explorer got further away, and he smiled as he waved his hand. He then turned around and walked into the airport terminal with his suitcase.

Suddenly, he heard a familiar voice nearby.

“Lu Zhou!”

Lu Zhou heard someone call his name, so he stopped walking.

When he turned around and looked, he was stunned.

Someone he never expected to see in a million years was running toward him.

It was like Vera had just finished running a marathon as she stopped in front of Lu Zhou and breathed heavily while leaning on her kneecaps. A bead of sweat fell down from her golden hair onto the ground.

Lu Zhou didn’t expect to see her here, and he looked at the little girl panting as he asked, “Why… are you here? I mean, how did you get here?”

“I… I took… I took a train here.”

Vera stuttered while panting.

Lu Zhou: “… You don’t have to bid farewell to me at the airport.”

“I’m… I’m not here… to bid you farewell. I just have to tell you something… very, very important.”

Lu Zhou looked at her panting and sighed.

“Can’t you just tell me over the phone or through email?”

Surprisingly, the usually submissive Vera suddenly became weirdly stubborn. “No, I can’t!”

Vera took a deep breath and stood up straight as she tidied her messy hair.

Jesus, this is such bad timing.

I should have put on a dress and some makeup, make myself look presentable.

But I guess it’s too late now.

I’ve been waiting too long for this…

Her thin lips opened and one word came out.

“I…”

Lu Zhou: “I…”

I can’t hesitate, I’ll never get the chance again…

Vera took a deep breath and gave herself some courage. She then closed her eyes.

She didn’t care anymore, and she finally shouted out the words that were buried in her heart.

“I like you!”

Chapter 513: I Won't Give Up

The atmosphere suddenly solidified.

It was as if time were frozen.

There were two women that walked by, and they looked at them with interest as they smirked and whispered to each other.

Even though it wasn't polite to speak loudly in public, no one would blame a courageous girl for confessing her innocent crush.

Of course, there were also guys that gave Lu Zhou dirty looks…

These two stared silently at each other in this crowded airport drop-off sidewalk.

It was like Vera's confession exhausted all of her courage.

Her white cheeks that were covered by her blonde hair gradually turned red. Her face felt like it was burning, like steam could come out at any second.

She never spoke so loud before, not even when she was lecturing.

Nor had she ever confessed to anyone.

Will he respond?

He's going to reject me, right?

What if I get rejected?

There were a million thoughts in the girl's mind.

However, for her, these problems were more difficult and complicated than the Collatz conjecture, and there wasn't one question she could analyze and find the answer to.

After all, this was the first time she had ever had a crush on someone.

As for Lu Zhou…

He was standing there dumbfounded.

The dumbfounded expression slowly disappeared from his face, and he went silent for a while before he replied calmly, "Sorry, I can't promise you anything."

The moment she heard this, her blue sapphire-like eyes began to water.

Vera gently bit her lower lip, and she looked down at the ground like an insect as she quietly said, "Do… you like someone else?"

Lu Zhou: "Oh no, not at all."

Rather, he had never liked anyone. He didn't even know what having a crush on someone felt like.

He thought about it carefully and realized he never liked anyone growing up.

Maybe responding to her confession is a good choice.

After all, he couldn't avoid the issue of love. He was already 25 years old, and he should start thinking about having a significant other.

If he lived alone for the rest of his life, like Newton or G. H. Hardy, he would be fine with it. He didn't have any obsession with having offspring.

After all, compared to his DNA, there were things that would be more worthy to leave behind.

However, even though this was his opinion, due to traditional Chinese culture, his father would kill him if he were to actually do this.

He had to consider other people's feelings too.

However, even then, he was clear that giving out an empty promise was irresponsible.

Regardless of what happened, he'd be on a flight back to China in an hour.

Vera used all of her courage to look up, and she stared straight into Lu Zhou's eyes.

There wasn't an ounce of evasion from Lu Zhou's dark pupils.

However, because of this, being rejected made her even more depressed.

There was a flash of despair in Vera's blue sapphire-like eyes, and she lowered her head.

"Is it because I'm too ugly…"

Lu Zhou shook his head and said, "No way, it's not."

If you're ugly, then there's no one on Earth who can be considered pretty.

Objectively speaking, even though her figure was a bit petite, judging from her face alone, she was undoubtedly gorgeous.

At least that was Lu Zhou's opinion.

Vera quietly said, "Then… is it because my boobs are too small?"

Lu Zhou gently coughed and said, "… No… what are you talking about."

Speaking of which, why would you suddenly bring up such a private topic?

However, he wasn't sure whether or not there was a direct correlation between love and chest size.

"Then… why?" Vera looked up at Lu Zhou and said, "If you're worried about my identity, I'm not your student anymore. Plus I…"

She looked back down at her feet and mumbled in a fragile voice, "… I waited all this time."

Lu Zhou went silent for a while.

He looked down at Vera and thought for a second. He then slowly spoke.

"You're an adorable girl."

When Vera heard Lu Zhou use "adorable" to describe herself, her cheeks began to feel warm again.

She wasn't sure what to respond, but Lu Zhou spoke first.

"The reason why I can't respond to your confession has nothing to do with the fact that you were my student, and it also has nothing to do with what you talked about.

"It's because I'm not available for an intimate relationship…"

"I won't drag you down," Vera interrupted Lu Zhou and quickly said, "I can research by your side. I will try to catch up to you… You don't need to spend a lot of time on me, as long as you're willing to let me be with you."

Lu Zhou quietly waited for Vera to finish talking. He then looked at her in the eyes and said in a serious tone, "It's not that I'm worried about you dragging me down, it's that I don't want to drag you down."

The pair went silent for a minute or so.

After that, the conversation died.

Lu Zhou looked at her thin lips that were moving slightly.

However, she spoke so quietly that he wasn't sure what she said.

When Lu Zhou was about to ask her, Vera suddenly looked at him in the eyes and stood up straight.

"I won't give up…"

There was an unusual sense of courage in her eyes.

This was the first time Lu Zhou had ever seen this expression on her face.

"You told me that if I win the Fields Medal, you'll promise me anything."

Did I say this?

Lu Zhou carefully recalled the past, but he seemed to have forgotten ever saying this.

He probably just casually said it in a conversation. After all, Vera was a timid and shy girl, and she didn't look like someone who would ask for something ridiculous.

However, Lu Zhou didn't expect that not only did she take it seriously, but she was bringing it up now.

"Really?" Lu Zhou smirked and said, "If you still haven't given up by then, I'll have to agree to you."

It had only been a year since the mathematics conference in Rio de Janeiro, the next conference would be three years later.

Not to mention, winning a Fields Medal wasn't that easy.

Even though she solved the Collatz conjecture and improved the Group Structure Method to a certain extent, she didn't produce any striking and outstanding results.

From an outsider's perspective, solving a mathematics conjecture was an amazing achievement.

However, the mathematics community was more concerned with the mathematical tools created in the process of solving conjectures, or any kind of new mathematical theory.

Because of this, the mathematical community viewed Lu Zhou as the biggest contributor to the Collatz conjecture. This was because, since the beginning of this research project, it was clear that Lu Zhou had an idea of how to solve this conjecture.

However, Lu Zhou didn't agree, and he was against this viewpoint.

Therefore, even though Vera had the potential for a Fields Medal, it would take at least seven or eight years for her to win one…

By that time, she'd probably be a little more mature…

This was probably the most tiring flight Lu Zhou had ever taken.

It was also the longest.

Lu Zhou carried his suitcase as he walked down the airstair. He looked tired as he pinched his eyebrows and felt his entire body was discombobulated.

He thought about it carefully and realized this was the first time in his life that he was ever confessed to.

And it's by my own student…

I guess being handsome is really a curse?

Wang Peng saw how exhausted Lu Zhou was, so he paused for a second and immediately took Lu Zhou's suitcase.

"Are you jet-lagged?"

Lu Zhou yawned and casually said, "I am, I didn't sleep on the plane at all…"

Wang Peng was astonished, and he looked at Lu Zhou.

"Didn't sleep? What did you do during the dozen-hour long flight?"

Being able to stay awake during a dozen-hour long flight was a nutty achievement in and of itself.

"I just thought about some stuff… regardless…" Lu Zhou diverted the conversation and coughed before he said, "Just take me to Zhongshan International. I just want to sleep right now."

Wang Peng nodded and said, “Okay… Do you need me to hold you?”

Lu Zhou: “… That’s not necessary.”

…

After Lu Zhou returned to China, he immediately threw his attention into the controllable nuclear fusion project.

The professors used Lu Zhou’s previous thesis on the stellarator plasma turbulence model as a reference. The computer science department and physics department of Jin Ling University finally finished writing the code for the plasma control scheme.

And almost at the same time, the construction of the supercomputer was also completed.

The superconductive coil and the main computer control scheme was written. Now there was only one thing left for him to do.

Which was to conduct the experiment.

After some discussion in a meeting, Lu Zhou finalized the next experiment plan. He also assigned tasks to various research units. The time of the experiment was finally decided to be on August 20th.

Even though Lu Zhou didn’t plan on doing any dangerous experiments, he still decided to report to the Jin Ling city government.

However, he didn’t expect that this ordinary experiment would be taken so seriously.

August 20th, under the Purple Mountain, outside of STAR Stellarator Research Institute.

Lu Zhou looked at the armored vehicle and helicopter parked outside of the institute entrance. He coughed and spoke to Regiment Commander Dai.

“Is this really necessary, it’s not a nuclear experiment.”

Regiment Commander Dai smiled and said, “Please don’t be nervous, Professor Lu, we’re doing this just in case. The military general even called

me, and he said that if there is an accident, the equipment can be left behind, but the people must come out alive."

If the accident you imagined really happens, it's not like we can escape with the help of a helicopter…

The neutron beam of fusion reactions was different from the fission reaction of gamma rays. From the perspective of the neutron beam, armor was the same as cardboard, the only thing that would help was to dive underwater… However, it might not make that big of a difference.

Lu Zhou explained in a serious manner, "I have to clarify that controllable nuclear fusion is safe. It's completely different from nuclear weapons."

Regiment Commander Dai still had a smile on his face as he said, "I know. We're doing this just in case."

Lu Zhou: "…"

Since Regiment Commander Dai was so persistent, Lu Zhou let him be.

An armored truck and helicopter didn't take up much parking space anyway.

After Lu Zhou and Regiment Commander Dai passed through the security check, they followed the guards and went into the laboratory that was under the mountain.

The engineers and researchers were already here, and they were working in their respective workstations.

Other than that, Lu Zhou saw a man and a woman dressed in casual wear.

The young woman's eyes lit up when she saw Lu Zhou, and she immediately walked over to him.

"Professor Lu, hello, I am Wu Qingqing from Jinling Daily, and this is my assistant Zhang An."

The young man, who was holding a camera, nodded and smiled brightly. "Professor Lu, hello!"

Lu Zhou frowned. He didn't look at these two. Instead, he looked at Sheng Xianfu and asked, "Why did you invite reporters?"

Sheng Xianfu was helpless, and he said, “I didn’t invite them, they were waiting at the entrance in the morning… I thought you invited them.”

Wu Qingqing saw that Lu Zhou didn’t seem like he was happy that they were here, so she immediately explained, “Professor Sheng had nothing to do with this. Jin Ling city government invited us to do a live interview… If we are interfering with your research, we can leave.”

Lu Zhou sighed and said, “Forget about it. Since you’re already here, if you want to stay, you can stay. But after the experiment begins, I hope you guys can remain quiet. Don’t say anything, don’t walk around, and don’t you dare take a phone call. Also, if you want to take any photos, take them now.”

Many Chinese and international theoretical physics and plasma research institutes liked to promote themselves using the media. CERN was a prime example of this. Even when they weren’t conducting any experiments, they would still hold a press conference every couple of days or so.

However, Lu Zhou didn’t have this habit. In his opinion, other than the final experiment result, all of the in-progress results were worthy of celebration, but they weren’t worthy of publication.

After all, theoretically, he could produce as many tiny in-progress results as he wanted.

Wu Qingqing smiled and said, “I understand! Oh yeah, before the experiment begins, can I interview you?”

Lu Zhou thought for a bit and said, “If it doesn’t take too long.”

“Professor Lu, please rest assured, it’s only a few simple questions, it won’t affect your work.” Wu Qingqing smiled brightly and opened her notebook as she said, “Many people turn their eyes when they hear the word ‘nuclear’. What I want to ask you is that, is controllable nuclear fusion really as safe as the experts say? Or rather, what will happen if there is a nuclear leak in the STAR machine?”

When Lu Zhou heard this outsider’s question, he smiled.

“Have you seen a hydrogen bomb explode?”

Wu Qingqing paused for a second and said, “… I’ve seen it in movies.”

Lu Zhou said, “If an accident happens, you’ll probably see a flash of light or you might not see it at all. Then the temperature from the explosion will turn every inch of your body into gas, but I promise this process won’t feel painful at all.”

Seeing that the two young people were nauseous, Lu Zhou chuckled.

“Just kidding.”

“Hahaha…” Wu Qingqing snorted and said, “Professor Lu, you’re such a comedian.”

Do all scientists make jokes like this?

Honestly, it’s not funny at all.

Lu Zhou spoke in a calm voice, “Relax, there’s a fundamental difference in fusion and fission reactions. The experiment today is only regarding plasma confinement, it won’t actually involve any fusion reactions.”

When Wu Qingqing heard that there wasn’t going to be any fusion reaction today, she quickly asked, “What is the difference between plasma confinement experiments and fusion reaction experiments?”

Lu Zhou: “The difference is that the nuclear fuel we use is hydrogen, not its isotope; deuterium.”

While they were speaking, the engineers had completed the final preparations for the experiment.

Lu Zhou stopped messing around and gestured the two reporters to quietly step aside. He signaled the staff to turn off their mobile phones and cameras. He then looked at Sheng Xianfu.

“Is it ready?”

Sheng Xianfu solemnly nodded and said, “It’s ready.”

Lu Zhou nodded and looked at the time on his silver watch.

It’s two minutes until 3 pm.

Everything was in place.

He looked through the floor-to-ceiling windows and looked at the steel behemoth in the middle of the laboratory.

Lu Zhou spoke in a steady and serious voice.

“Then begin the experiment!”

Beijing.

There was a controllable nuclear fusion program going on in the CTV Road Of Science studio.

“Welcome everyone to Road Of Science, I am your host, Cheng Nan.

“We always see controllable nuclear fusion in the world of science fiction film and television works. It seems that all of our future energy fantasies are locked up in the words ‘controllable nuclear fusion’…

“The theme of today’s program is the future energy source that we are all fascinated with— controllable nuclear fusion.

“For this, we invited the director of the China International Nuclear Fusion Energy Program Execution Center and the chief engineer, Academician Zhou Chengfu, from the Southwestern Institute of Physics to explain the past and present of controllable nuclear fusion… Everyone, let’s welcome them!”

Clap clap clap!

The audience in the crowd was encouraged by the host to give a round of applause.

Zhou Chengfu walked out from the backstage and onto the studio stage. With his head full of white hair, he nodded and gently smiled toward the live audience. He then sat on the sofa.

He had been attending meetings in Beijing over the past few days. He received an appearance invitation from Road Of Science. Since he wasn’t busy, he decided to head on over to the studio.

Even though they said that scientists were different than actors and that scientists didn’t need publicity, however, for researchers like him that were engaged in futuristic disciplines, it was still necessary for them to make a certain amount of media appearances.

After all, scientists like him were spending a lot of money on scientific research funding. The public deserved to know what the money was being used on and what the research results could do to change their lives.

“Some of you might have heard that a few months ago, the STAR stellarator in Jin Ling City successfully completed its first experiment. Including this stellarator, the magnetic confinement fusion devices such as HT-7 and the EAST tokamak as well as inertial confinement fusion machines like the SG-III and the newly proposed reversed-field pinch devices, our country’s researchers are involved in basically all of the possible technical routes for controllable nuclear fusion. We are at the forefront of the world.

“Before the STAR machine, our country’s research toward the stellarator was basically non-existent. I want to ask Academician Zhou, what do you think about our country’s first stellarator machine?”

When Zhou Chengfu heard this question, he smiled and replied humbly, “Saying it’s the first in the country is a bit exaggerated. After all, tritium is very expensive. Before solving the problems of heavy water and plasma irradiation damage on the first wall material, we usually experiment with hydrogen.”

The host: “Are you familiar with the STAR machine?”

Zhou Chengfu smiled and said, “I don’t know a lot, but I know enough.”

The host: “Then can you explain to us the special characteristics of the STAR machine?”

Zhou Chengfu smirked when he heard this question, and he opened his mouth and said, “In terms of its special characteristics, it’s just like you said, it’s probably the first real stellarator in the country.

“You guys might not have heard of its origin. However, I can tell you that this is Germany’s WEGA device. This machine was retired back in around 2013 and was stored in Frankfurt ever since. That was until when Professor Lu went to Germany for an academic exchange, and he had his eyes set on this machine. Therefore, he persuaded the two countries and spent around €500 million in research funding to buy this machine from the Germans.”

The host looked astonished, he said, “€500 million? That’s almost 4 billion yuan… Is controllable nuclear fusion this expensive?”

The live audience members were also astounded.

4 billion yuan!

Their poverty limited their imagination. They could never imagine that research would cost this much money.

Zhou Chengfu smiled and didn't react at all to this large number.

"It's all relative. It's quite a bit compared to mathematics research funding. But if you compare it to the space station or the hadron collider, it's slightly cheaper."

Of course, it was more than just "slightly" cheaper.

The host: "Then do you think the resurrected STAR machine can replicate the 30-minute mark of Wendelstein 7-X?"

Zhou Chengfu didn't seem to like the word "resurrected", so he subconsciously frowned. However, he realized he was taping a show, so his eyebrows relaxed again.

"30 minutes?" Zhou Chengfu smiled and shook his head. "It'd be great if they could run the machine for 2 minutes."

Surprised, the host looked at Zhou Chengfu as he asked, "Are you not optimistic about the STAR machine?"

When Zhou Chengfu heard this question, he said, "It's not a matter of whether or not I'm optimistic about it. The reason why Wendelstein 7-X was able to maintain a 30-minute plasma confinement time was due to the special external field coil design and the most important factor; the water-cooled divertor.

"Even though WEGA also has this water-cooled divertor, their divertor was a 20-year-old tech. It's a lot worse than the current Wendelstein 7-X divertor. If the STAR stellarator wants to replicate Wendelstein 7-X's success, then they would have to innovate on the water-cooled divertor. However, they obviously didn't do this."

He wasn’t bullshitting. The reason why the Wendelstein was able to achieve the 30-minute mark was mainly due to the water-cooled divertor. At least, that was what the Germans thought.

And the newest water-cooled divertor obviously wasn’t installed on the WEGA machine.

Even if one disregarded these factors, just judging from that science review article that came out attacking them two months ago, the STAR Stellarator Research Institute hadn’t done anything in return.

Right now Zhou Chengfu was confident that Lu Zhou wanted to fight him, but the STAR machine simply couldn’t do anything.

Therefore, he had no pressure saying this on television.

“… Right now, the mainstream international controllable nuclear fusion research is still the tokamak. Then, it’s the inertial confinement fusion device as well as the reversed-field pinch device you just mentioned.

“Theoretically, all of these technical routes are possible. We just have to solve all of the problems a certain technical route faces, and the final destination will be the fusion energy that we all desperately want. It’s just like a truck and a sedan, as long as they have four wheels, they can drive on the highway.”

The audience was amused by this analogy, and they were all grinning.

Zhou Chengfu paused for a second and continued, “The stellarator is too difficult from an engineering perspective. In contrast, the tokamak is much more succinct, and it has a relatively low engineering difficulty.

“We don’t have to attempt every single technical route. Rather than trying every possibility, it’d be better to focus our limited resources on a few optimal routes.

“Instead of carelessly attempting random technical routes, this is the logical way to do research!”

…

After the interview finished, the sound of applause resonated in Zhou Chengfu's head. He left the studio and couldn't even describe how happy he was feeling.

Even though this kind of science shows for the public didn't have a lot of purposes, whenever he thought about that young man who ignored him, he couldn't help but feel relieved.

Suddenly, his phone in his pocket began to ring.

He took out his phone and saw Jiang Liang was calling, so he picked up the call and put his phone against his ear.

"Hello?"

"Director! Director Zhou!"

"What?" Zhou Chengfu heard how flustered Jiang Liang was, so he furrowed his eyebrows.

"The STAR research institute!"

Zhou Chengfu said impatiently, "Speak in full sentences, what happened with the STAR research institute?"

"Yesterday, they restarted their experiment!"

Zhou Chengfu's heart dropped to his stomach when he heard this, and he immediately asked, "They restarted their experiment? How come I didn't hear anything about this? Tell me, how was their experiment? Did they achieve the 30 minutes of run time?"

Jiang Liang was being fired with questions, and he had a bitter smile on his face.

"Not thirty minutes…"

When Zhou Chengfu heard it wasn't thirty minutes, he sighed in relief.

However, before he could feel relieved, something else happened.

Jiang Liang, who was still on the other end of the telephone, spoke bitterly in disbelief.

“… I saw on Jinling Daily that they achieved one hour of magnetic confinement time…”

He almost wasn’t able to breathe.

“One hour?!”

Zhou Chengfu’s fingers were trembling, and he nearly dropped his phone on the ground. His eyes widened, and his wrinkly old face was red from his rising blood pressure.

“How is this possible!”

This is impossible!

There’s no way!

Even the latest Wendelstein 7-X’s achievement was only 30 minutes.

How did they modify the WEGA machine, which was retired in 2013, to be able to achieve a one hour run time?

*How the f*ck?*

Jiang Liang was sweating bullets as he said, “I-I only just heard about this. I called you as soon as I heard about it… How about… I go to Jinling and see if it’s legit?”

“… It’s fine.”

Zhou Chengfu took a deep breath and gradually calmed down.

Even though he didn’t want to believe it, but since Jinling Daily reported heavily on this issue, it was unlikely that it was fake news.

It wasn’t like it couldn’t be fake, it was just that the only benefit from faking something like this was to make the members of Jin Ling city council happy. It was quite useless otherwise.

After all, private capital investments in these types of large-scale projects were basically negligible. Most of their research funding came from the government. A non-expert article from Jinling Daily or even a scientific journal

for that matter wouldn't come into play in terms of government scientific research funding decisions…

Therefore, since the news was released by Jinling Daily first, the legitimacy of the news source was high.

However, by the time the public heard about this news, Lu Zhou and his team were probably already preparing their Science and Nature theses.

Zhou Chengfu thought about this and had a sliver of fear in his eyes.

He didn't expect this kid to be this smart. He purposely didn't respond to his provocative article. Instead, the kid dug a hole and waited for him to jump into it.

Fortunately, he didn't do anything out of line. Otherwise, this mess would be even more difficult to clean up…

However, Zhou Chengfu didn't realize something.

Which was that since the beginning, Lu Zhou never viewed him as a worthy opponent. All Lu Zhou did was follow his research plan step by step.

Jiang Liang quietly asked, "Director Zhou, what do we do now?"

Zhou Chengfu had a bitter smile on his face.

What do we do?

He was contemplating this as well.

This would be easy to solve if Lu Zhou was under the same jurisdiction as him. Unfortunately, Lu Zhou wasn't part of the China National Nuclear Corporation, nor was he part of the China International Nuclear Fusion Energy Program Execution Center.

Simply put, he had no power over Lu Zhou.

It seemed that his usual tactics wouldn't work here.

Of course, these were all secondary.

The most important part was this one hour magnetic confinement time since it was leaps and bounds ahead of everyone else.

This result in and of itself was breathtaking…

…

In some sense, Zhou Chengfu's analysis on the television program was correct.

The water-cooled divertor was one of the most important components in the controllable nuclear fusion device. Which was also one of the shortcomings in China's controllable nuclear fusion field. Without solving the problem of the divertor, theoretically, there was no way for the STAR machine to perform better than the WEGA did.

In other words, if the water-cooled divertor problem was solved, then the domestic tokamak magnetic confinement times would also increase by quite a bit… Of course, there were also other unsolved problems, like the magnetic surface tear of the internal plasma current.

However, this wasn't it.

To achieve a long plasma confinement time, one would have to solve the heat dissipation problem of the first wall material. Increasing the cooling rate wasn't the only way to solve this problem.

Improving the control scheme and precisely controlling the external field coil could reduce the direct contact of the plasma and the first wall material. This could produce the same cooling effect.

Even though this approach was more difficult than the water-cooled divertor from a technical perspective, it was very easy from an engineering perspective.

After they created a control scheme, achieving a 30-minute confinement run-time was only a matter of time.

However, Xiao Ai played a crucial role as for how Lu Zhou went from half an hour to one hour.

After the supercomputer was built, he fulfilled his agreement with Xiao Ai and gave it a new home.

His original server acted as a “repeater” between his local network and the internet, which was stored in his home so that he could contact Xiao Ai through his phone.

As for the cybersecurity problems…

Honestly, if someone could hack into the artificial intelligence that the high tech system gave him, he would admit defeat.

After all, anyone that could do such a thing probably didn’t come from Earth.

In short, after Xiao Ai was moved into its new home, it finally did something useful.

Through the control scheme algorithm that was stored in the supercomputer and its analysis of the plasma experimental data, it had greatly improved and optimized the original control scheme algorithm.

On the day of the experiment, Lu Zhou executed the experiment as planned.

Their original plan was to achieve a thirty-minute run time. However, after thirty minutes of experimenting, they didn’t expect the sensors to indicate that the reactor was running normally.

After that, he received a text from Xiao Ai.

[(๑•̀ㅂ•́)و✧].

Therefore, after a short conversation with Xiao Ai, Lu Zhou decided to change the experiment plan on-the-go. He ordered his assistant Sheng Xianfu to continue the experiment and set the experiment target to one hour…

This was the story behind the shocking one-hour run-time achievement.

…

Inside the pure white system space.

Lu Zhou stood in front of the translucent mission panel and confirmed his mission completion details.

1. [Congratulations, User, for completing the “artificial intelligence” technology branch mission!]

2. [“Fusion Light” mission chain]

[Optional branch mission: 1-hour high-density plasma confinement. (complete!)]

The first mission was from his technology branch.

After so many years, he almost forgot it existed.

According to the system’s experience reward rules, leveling up his “artificial intelligence” technology branch to level 2 also gave him 10,000 information science experience points, which leveled up his information science discipline to level 2.

The second mission rewarded him with 50,000 engineering experience points, just enough for him to level up.

Other than that, there were also 500 general points.

This experiment could be considered a huge success.

Lu Zhou closed the mission panel and ordered, “System, open my characteristic panel!”

A blue light swept across the screen. Soon, his updated characteristic panel was presented in front of him.

[

A. Mathematics: Level 7 (144,000/1.2 million)

B. Physics: Level 5 (83,215/300,000)

C. Biochemistry: Level 4 (74,000/100,000)

D. Engineering: Level 4 (0/200,000)

E. Materials science: level 5 (13,000/300,000)

F. Energy science: Level 2 (0/50,000)

G. Information science: Level 2 (3,000/50,000)

General points: 5,475 (one lucky draw ticket)

]

[

Technology branch:

Artificial intelligence: Level 2 (0/50,000)

]

Lu Zhou looked at his updated characteristic panel and nodded in satisfaction.

Ever since he activated the controllable nuclear fusion mission chain, he felt like he was leveling up at the speed of light.

The only downside was that he didn't get a lot of mathematics experience points.

As a mathematician, he couldn't help but feel a little gloomy…

The researchers at the STAR Stellarator Research Institute spent around three days wrangling the experimental data.

At the same time, Lu Zhou, who was responsible for summarizing the data, finished writing the relevant thesis. With more than thirty authors named on this thesis, Lu Zhou finally submitted it to the Science journal editorial department.

Just after he finished submitting the thesis, his phone began to ring.

Lu Zhou picked up the phone. When he saw that it was Academician Pan who was calling him, he answered the call.

The second the call connected, he heard laughter from the other end of the phone.

“Kid, you’re not bad at all! You’re really giving Old Zhou a headache with this one. He’s probably wondering how he’s going to take back his words.”

Lu Zhou was leaning against his office chair as he made a careless expression.

He’s the one that is coming after me, it’s not like I did anything wrong.

Even if I say my comeback wasn’t intentional, I’m sure not a lot of people will believe me.

Academician Pan paused for a second before he said in a more serious tone, “Honestly, when I heard that your second experiment target was thirty minutes, I was more than astonished. I never expected to have actually underestimated your abilities. I’m sure the Germans also didn’t expect their garbage WEGA machine to perform this well.”

Even though the run-time was only doubled, this type of thing couldn’t be compared linearly.

It was no exaggeration to say that this achievement alone would put them miles ahead of the world in terms of controllable nuclear fusion research.

“What’s next? What’s your next plan?”

Lu Zhou smiled. “Next time, I plan on taking this seriously.”

There was a subtle change in Academician Pan’s facial expression as he spoke in disbelief.

“Demonstration reactor?”

Lu Zhou, while holding the phone, nodded.

“Yes.”

When Academician Pan heard Lu Zhou’s decisive answer through the phone, he took a deep breath. He was completely shocked.

Even though the experimental reactor sounded similar to the demonstration reactor, they were two completely different things.

The former was only able to achieve the most basic experimental set up for plasma experiments, while the latter was a demonstration reaction device that required a series of technical requirements such as plasma confinement, fusion reaction, and the appropriate power output.

It came as a surprise to no one that for a long time, this demonstration reactor became China and the world's controllable nuclear fusion target project.

It wasn't an exaggeration to say that the former was child's play compared to the latter.

Even though controllable nuclear fusion research experiments had been going on for more than half a century and various experimental reactors had emerged throughout the world, but whether it was the Princeton Institute for Plasma Physics or the Max Planck Institute for Plasma Physics, there wasn't a single institution on earth that could create a nuclear fusion demonstration reactor.

And the plan for building a demonstration reactor had always been on the timelines of various large research institutes.

Academician Pan hesitated for a bit before asking in an uncertain tone, "Isn't it a bit too early to start building a demonstration reactor?"

Even though a one-hour high-density plasma magnetic confinement time was worthy of celebration, it was still quite ambitious to start building a demonstration reactor now.

As far as Academician Pan was concerned, there were many major issues that were unsolved.

When he heard how confident Lu Zhou was, he couldn't help but worry if Lu Zhou was becoming too arrogant.

Lu Zhou smiled when he heard Academician Pan's question.

"It's not too early. There are a lot of things we can do while researching. We don't have to wait until everything is ready. Not to mention, the most important superconducting magnet and control scheme is already solved. I'm sure it's only a matter of time until anti-radiation materials for the first wall is invented. As long as the conditions are matched, I have an 80% certainty of building this demonstration reactor."

Lu Zhou wanted to first build the components for the reactor, such as the plasma track, external field coil, water-cooled divertor, etc. For the problems that were impossible to solve from an engineering perspective, such as the first wall material, he would have to wait until the theory was solved. After that, he could invent and implement the material.

However, the scale of a demonstration reactor was completely different from the experimental reactor, and they were on a different order of magnitude.

And his research funding was running low.

When Lu Zhou thought about this, he subconsciously looked at the fountain pen laying on the corner of his table.

Looks like I'll have to write some letters again.

…

For most people, submitting a thesis to top journals such as Science and Nature wasn't an easy task. However, this wasn't difficult for Lu Zhou at all.

Even taking out the fact that he was a Nobel Prize winner and had a good reputation in academia, just from his past cooperation with the Science editorial department and the power behind the words "nuclear fusion" alone was enough for the editorial department to take his thesis seriously.

The data didn't have any problems, and Lu Zhou didn't have to wait long before his thesis was quickly reviewed and published in the latest issue of Science.

After the publication of the thesis, the people finally learned about the miracle that happened on the STAR machine. The entire plasma physics community exploded.

How long was one hour?

Just a year ago, various countries were using seconds as a measurement for their tokamak run-time.

The results of this thesis were leaps and bounds beyond any other national research institutes.

However, if one used a pulse igniter, one wouldn't need such a long confinement time. But the shock that came with this one-hour achievement was still able to surprise all of the scholars that were paying attention to this machine.

Not only in academia, but the success of the STAR machine also aroused the general public's attention, which led to a lot of heated discussions on the internet.

Some people pressed the like button as they thought it was a huge step toward the future.

Some other people expressed their concerns when they thought humans were moving closer and closer to their own extinction.

While some people didn't care at all.

After all, it wasn't their first time seeing news about controllable fusion energy. Twenty years ago, someone said that controllable nuclear fusion energy would be achievable in twenty years at the latest. However, no one was able to fulfill that original promise.

But in any case, for a major scientific breakthrough like this, the CTV stood on the political side and gave widespread coverage of the news.

In its latest news broadcast, CTV allocated a specific segment for a comprehensive report on this matter.

"A few days ago, the Jinling STAR Stellarator Research Institute published a paper in Science, which revealed the details of their latest controllable nuclear fusion experiment.

"In that experiment, Chinese Nobel Prize laureate Professor Lu Zhou and his research team were able to successfully achieve a one-hour plasma confinement run-time.

"According to experts within the industry, this technological breakthrough is expected to open a new chapter for controllable nuclear fusion research…"

As usual, the CTV news segment cited a foreign media interview.

Stanford Professor Burton Richter, 1976 Nobel Prize laureate and Tri Alpha consultant, was sitting in front of the camera. He was asked by a CBS reporter on his opinion regarding the STAR machine, in which he described how astonished he was.

"… When my colleague told me that someone was able to achieve a one-hour magnetic confinement runtime, I first thought it was a ridiculous joke. That was until he found the paper in the latest Science issue and presented it in front of me.

"Even now, my heart is still full of amazement. Especially when I heard that the machine was a modified version of the retired WEGA machine, that just added to the surprise even more.

"There was no way WEGA could achieve something like this when even the Wendelstein 7-X couldn't.

"In my opinion, China is at the forefront of controllable nuclear fusion research. If the most important superconducting material and plasma control scheme is solved, then they only have to solve the first wall plasma anti-radiation material problem before they could build a real demonstration fusion reactor. After all, converting heat energy into electrical energy wasn't a difficult problem in and of itself."

Burton Richter had a mixture of emotions on his face.

"We've been leading the controllable nuclear fusion field for half a century, but it's very likely that we'll lose at the finishing line. I'm not joking, the Department of Energy should take this matter seriously…"

Regardless of whether or not the American Department of Energy took this matter seriously, the STAR machine attracted attention from many high ranking Chinese government officials.

The paper that was published in Science pushed the word "controllable nuclear fusion" to the cusp of global media coverage. At the same time, a hand-written letter from Lu Zhou appeared on Mr. President's office.

This letter triggered a lot of sensitive nerves…

Beijing.

A mysterious place inside a ring road.

Director Lu stood in front of the office door and took a deep breath. He reached out his hand and gently knocked on the door.

After he heard someone say, “Come in,” he opened the door and walked inside. He spoke respectfully.

“Sir, did you ask for me?”

The old man looked at the head of the energy department standing at the doorway, and he gently smiled.

“I have a letter here, take it and read it.”

Without hesitating, Director Lu walked up and picked up the letter from the desk.

He looked at the title of the letter and had an epiphany.

This made sense; there were only a few people in the country that could directly send letters to this office.

Just as he expected, this letter was related to the matters at Jinling.

[Dear…

[I’m sure you have heard about our STAR research institute’s latest experiment. Where our researchers were able to achieve a one hour magnetic confinement time.

[This research result allows me to believe that in the near future, deuterium will become a brand new, important energy source for us to use. This type of energy is cleaner and more efficient than any other type of energy that we are familiar with.

[In theory, one kilogram of deuterium and tritium mixture can release 108 million kWh of energy in a complete reaction. Using an energy conversion ratio of 35%, 37.8 million kWh of electricity can be produced.

[Using a rough estimation, we would only need 167 tons of deuterium and tritium mixture to satisfy China’s yearly energy demands.

[Aside from the fact that tritium can be used as an intermediate product, the main consumption material, deuterium, costs less than 4,000 yuan per kilogram. And by expanding the production scale, this cost could be greatly reduced.

[Based on these apparent facts, we can deduce through a simple calculation that the cost of nuclear fusion energy will be less than a thousandth of the cost of traditional thermal power.

[The creation of nuclear energy will completely change society's energy structure. It will completely change our lifestyles and production capacity… It will change everything we know of.

[As a scholar, it's my duty to remind you that we are at an inflection point in history, and the door to a new era is right in front of our eyes.

[Of course, the cost of opening this door will be huge.

[The decision of opening this door is in your hands.

[…]

The letter wasn't over; it was followed by a timeline for the commercialization of controllable nuclear fusion technology, the goals of the demonstration reactor, and a budget statement.

For the time being, Director Lu didn't finish reading the letter. After reading the first page, his eyebrows twitched.

The entire letter was full of polite wording. It was about how good the future of fusion energy was and how important it was. However, between the lines of the handwritten letter, all he could see was, "give me the money".

He turned the page to the demonstration reactor plan.

It contained a detailed list of Professor Lu's estimated specifications for the various DEMO reactor components, as well as an estimation for the performance of the DEMO machine.

[Project objective: To complete the construction of the DEMO demonstration reactor by 2025.

[Assessment Criteria: Radiofrequency prototype negative ion source surface: 0.45 x 3.2m, radiofrequency plasma under multi-drive has a uniformity of over 95%, negative ion extraction current density is greater than 300A/m^2, beam intensity greater than 20A, negative ion beam synthesis energy indicator reaches 200keV, beam stability lasts for 60 minutes…]

Even though he had met Lu Zhou a few times, he never knew that Professor Lu Zhou was involved in engineering as well. The plan looked legit.

He read the plan from start to finish.

The more he read, the most serious he looked.

Director Lu was irritated, and he put down the letter and shook his head.

“43 billion yuan… Professor Lu really knows how to make us spend money.”

This wasn’t just about money.

Especially that one specific line in the plan—”This reactor alone can satisfy the electricity needs of the entire Jiangsu province.”

It was an obvious boast and likely wasn’t backed by facts.

One should know that the yearly electricity consumption in Jiangsu was 580.78 billion kWh, second only to Guangdong’s 596.89 billion kWh, with Jiangsu’s consumption ranking second in the country!

Even if this power generator was running 24 hours a day, to produce 580.79 billion kWh a year would require at least 66,300 MW of continuous power!

What did a power output of 66,300 MW mean?

The total power capacity of the Three Gorges Dam was only 22,000 MW, while the six nuclear power units in Daya Bay only added up to around 6000 MW.

Which meant that the power of one fusion reactor was equivalent to three Three Gorges Dams? Or eleven Daya Bay nuclear power units?

What kind of monster reactor was this?

Common sense told Director Lu that this was impossible.

If it were anyone else that drafted this plan, he wouldn't think twice before throwing it in the garbage bin.

However…

This was from Professor Lu.

And when he thought about it carefully, it was actually kind of tempting…

When the president looked at how perplexed Director Lu was, he smiled and asked, "What do you think about this?"

"The plan is extremely ambitious, I don't know where he got this confidence from, but…" Director Lu realized that the old man wasn't asking for his opinion, so he hesitated for a second before saying cautiously, "I am certain that the things he said, are exactly what we need!"

China was a huge energy-consuming country. Their annual coal and oil consumption was measured in billions of tons. Especially their coal consumption, which accounted for almost half of the world's total coal usage!

If Professor Lu's letter was correct, that their entire country's electricity needs could be met with just 167 tons of deuterium and tritium mixture, then with the wide application of fusion energy, China's future energy expenditure would be a fraction of the current cost!

Also, the motivating factors weren't just the political and economic value behind it, but it was also the cleanliness factor.

Due to the Renewable Energy Assessment subsidy provided by the state, the various provincial administrative regions were inclined to meet their quota for minimum renewable energy consumption. The state had always been determined to develop clean energy.

This was one of the reasons why "conserving energy" was mentioned at every large government meeting.

Fusion energy was efficient, cheap, abundant, and hardly produced any type of pollution. It could basically solve all of China's sustainable energy problems, once and for all.

If all of this was achievable, the state should develop this technology at all costs.

“It is quite ambitious.” The president nodded and paused for a second before saying, “But I think it is worth trying.”

Director Lu’s made a subtle expression, and he immediately said respectfully, “I understand, sir.”

Even though there were still some doubts in his heart about the contents of that letter, his doubts were no longer important.

A 40 billion yuan project couldn’t be decided by one individual alone. Hearing how relaxed the president’s words were, it was obvious that this proposal was unanimously agreed by the National People’s Congress.

Since the highest governing body agreed to this proposal, there was only one thing left for him to do.

Which was to draw up a plan that would meet all of Professor Lu’s conditions and to try his best to ensure that this “DEMO demonstration reactor” project could begin as soon as possible!

Sitting behind the desk, the president suddenly thought about something.

“Oh yeah, how is the China International Nuclear Fusion Energy Program Execution Center project going?”

Director Lu replied honestly, “Looking at the timeline, they plan on constructing the demonstration reactor in 2025… However, given that the various conditions are not met, I’m afraid it might be postponed.”

The president shook his head and said, “So slow.”

Comparison is the thief of joy.

By comparing these two demonstration reactor projects, the timeline gap was apparent.

Director Lu: “… Scientific research cannot be rushed.”

“You’re right, slow and steady is the way to go.” The president nodded and said, “Then let them slowly do their research. Since they don’t need money for the time being, just take out part of their research funding.”

Chapter 519: Hopeless Future

Chapter 519: Hopeless Future

While the STAR stellarator machine completely ignited the controllable nuclear fusion field, shocking the entire plasma physics community, Greifswald, which was at the edge of the Baltic Sea, was as calm as always.

The Wendelstein 7-X laboratory was located in this small rural town. The researchers and engineers were going to work on time, doing their usual tasks, just casually drinking coffee, and chatting during their lunch breaks…

However, there was more or less a look of depression on everyone’s face.

Just a few days ago, the newly published paper on Science completely shattered their pride.

For a long time, they were at the forefront of stellarator research.

Even the Princeton PPPL, which invented the stellarator technical route, couldn’t keep up with their stellarator research.

However, a few days ago, their lead was completely demolished.

The STAR machine located in Jin Ling City, China, was able to achieve a one hour confinement time on 100 million-degree plasma.

It wasn’t an exaggeration to say that not only was this technological breakthrough leaps and bounds ahead of their current research, but this breakthrough was at the cusp of the finishing line.

And the most frustrating thing was the fact that they had no idea how the hell the STAR machine did it…

Keriber looked at the paper with a solemn expression on his face.

He had read the thesis in its entirety more than a dozen times.

However, no matter how many times he read it, when he saw the dazzling data, he couldn't help but feel shocked at the implication behind this thesis.

His assistant, Price, was standing next to him. Price took a deep breath and couldn't help but exclaim, "I can't believe this… How did they do it?"

Professor Keriber shook his head. When he placed the thesis on the table, he said, "I don't know. If I knew, we wouldn't be so inactive right now."

He was the head of the Wendelstein 7-X laboratory, so average researchers couldn't imagine the amount of pressure he was under.

After all, he was the one that convinced the Max Planck Society and Helmholtz Association of German Research Centres to follow through on selling the WEGA machine.

Even though this wasn't entirely his fault, he promised that all of WEGA machine's component technologies were at least two generations behind that of Wendelstein 7-X's…

But even though he still firmly believed in his previous statement, there probably weren't a lot of people that trusted him.

Price suddenly began to wonder, and he quietly asked, "Maybe they… faked it?"

Keriber shook his head and said, "There are no problems at all in the data. The possibility of them conducting fraud is almost zero."

In a soft voice, Price reminded him, "But Professor Lu is a mathematician…"

What Price really wanted to say was, if a big name Fields Medal winner wanted to create fraudulent data, no one would even be able to tell the difference.

However, Keriber shook his head and spoke in a serious manner.

"I trust in his academic reputation. Also, there's no reason for him to do something like this."

Suddenly, a knocking sound was heard at the door, and a researcher walked in.

“Professor, the president of the Helmholtz Association of German Research Centres, Professor Millek, and Secretary-General Norbert from the Federal Ministry of Economics and Technology is outside.”

Professor Keriber’s body was drained of energy. He sighed and pushed himself up from the office chair.

“Understood, I’ll go there right now.”

…

Laboratory first floor.

Just as Professor Keriber walked out of the office, he saw a group of people marching into the building.

Professor Keriber looked at the two people leading the group. He cleared his throat and forced a stiff smile on his face.

“Professor Millek, Mr. Norbert, welcome to Wendelstein 7-X laboratory… What brings you guys here?”

Professor Millek didn’t smile. Instead, he said with a blank expression, “Cut the crap, take me inside.”

Professor Keriber was stunned, and he said, “Inside?”

“Inside the Wendelstein 7-X.”

“Wendelstein 7-X? Sorry, there isn’t any experiment planned for today…”

“I don’t care if there’s an experiment or not.” Professor Millek stared at Keriber and said, one word at a time, “Take. Me. Inside.”

“Okay…”

Professor Keriber hesitated for a bit before nodded.

In academia, whoever had control of the research funding was the boss.

This was true in any country.

Professor Keriber didn't feel the best right now. Actually, he felt horrible. However, he still had to bury those negative emotions in his heart.

After all, most of the research funding for the Wendelstein 7-X laboratory was controlled by these two big names.

With Professor Keriber leading the way, the group of people walked into the research institute. They soon arrived at the laboratory in which the Wendelstein 7-X machine was stored.

This medal behemoth was situated in the middle of the laboratory. Professor Millek walked up and personally examined the instrument.

Professor Keriber was confused at his actions, and he asked, "Are you satisfied?"

Professor Millek took two steps back and nodded. "Very good, it's still here."

Keriber: "What is still here?"

Professor Millek stared at Keriber and replied bluntly, "I thought you sold all of the components for €500 million."

Keriber had a strange expression on his face.

"I don't know why you would think that, but rest assured, because… the Wendelstein 7-X doesn't have that kind of capability."

Even though this was frustrating, it was nothing but facts.

An hour-long magnetic confinement experiment would burn their first wall material to ashes.

But if they really tried to replace their outer field coils with the SG-1 material and improve the control scheme, it might be possible.

However, this might sound simple, but it would take a lot of time and resources to actually execute…

And now was obviously not a good time to ask for more research funding.

“That’s the problem,” said the president of the Federal Ministry of Economics and Technology.

Mr. Norbert looked at Keriber and slowly said, “How come the improved WEGA machine, the STAR machine, can do it? How come the Wendelstein 7-X, which you guys spent five years renovating, can’t? Maybe I’m not being scientific with my words here, but I want to ask, aren’t these machines born from the same mother?”

The few staff standing around couldn’t help but chuckle.

Keriber’s eyebrows twitched, but he still explained patiently, “Yes, you’re right, their machine is only an improved version of our old WEGA machine. However, I can guarantee that their WEGA machine has been completely remodeled.

“The key to their one hour magnetic confinement time isn’t our device. It’s the superconducting magnets and the control scheme… Also some other secrets only they know.”

Norbert interrupted Professor Keriber’s explanation. “I didn’t come here to listen to you explain your failure.

“We’ve spent countless billions of euros on you, and you’ve been beating around the bush for decades. Not only are you far from achieving any type of significant results, but a country that has been terrible at nuclear research has surpassed us. I have to say, this isn’t something I like. I need you to catch up to them and give a reasonable explanation to the government and our allies.”

Professor Keriber bit the bullet and said, “I’m doing my best.”

Mr. Norbert looked at Professor Keriber. “Don’t just give me empty promises, I want to see results.”

Norbert turned around and walked away while his staff followed him.

Beijing.

Even though it was late at night, the China National Nuclear Corporation building was still brightly lit.

Su Yiwen received a call for a conference even though he had already left work and was already laying in bed. He climbed out of bed, put on some clothes, then drove to the corporation building.

Su Yiwen yawned while sitting in the conference room. He looked at Section Chief Zhang, who was sitting next to him, and he couldn't help but speak, "What the hell is going on, why are we having a meeting so late?"

"I don't know." Zhang Xueqian shook his head. He thought about something and said, "I just heard that it has something to do with the recent stellarator experiment at Jinling."

A week ago, very few people would know what a stellarator was. Even if they were familiar with the word, they would not be able to precisely explain what it was.

But now, anyone that looked at the news broadcasts or saw the trending pages online would know about the shocking one hour run-time of the STAR machine.

After all, this was the research result that shocked the entire plasma physics community.

However…

What did this have to do with the China National Nuclear Corporation?

"Stellarator?" Su Yiwen stared at his boss and said with a strange expression, "Aren't the Chinese Academy of Sciences researching that thing? What does it have to do with us?"

Old Zhang glanced at him and said, "You're asking me, who do I ask?"

They didn't wait for long before the conference began.

While chatting with Old Zhang, Su Yiwen learned that this conference was personally hosted by the CEO of the corporation. Not only did the department level leaders receive notice of the conference, but high-level engineers and senior researchers from various city-level research institutes also received a notice for the conference, and almost all of them were coming.

Even though Su Yiwen didn't know what the CEO planned to speak about at the meeting, looking at the dozen or so Academy of Sciences academicians and the Academy of Engineering academicians sitting in the front row of the conference room, Su Yiwen put on a serious attitude.

Normally speaking, these big names wouldn't attend the same meetings as them, and even if they did, only a few of them would come.

But now, all of these big names were sitting here.

Obviously, important things were about to be discussed at this conference.

Soon, a dignified looking man walked on stage.

Xu Jianfeng cleared his throat and reached out for the microphone. He didn't waste time on his opening statement, and he spoke in a simple and concise manner.

"My apologies for hosting a meeting at this hour. You've all worked hard during the day, so I know it's not easy for you all to be here.

"The things I am about to say are very important, and I hope everyone will carefully listen to every word and take notes.

"There are a lot of things that I have to say, but I'll try to keep it short."

CEO Xu paused for a second and spoke in a more serious tone.

"I'm sure everyone has heard that a week ago, there has been a huge breakthrough in the controllable nuclear fusion field. Professor Lu Zhou's research team was able to achieve a one-hour high-density plasma confinement time.

"I'm glad to see our country is at the forefront of controllable fusion technology.

"Our country is a major energy consumer, and we have an urgent need for sustainable energy. Two hours ago, the Communist Party of China issued an administrative document to relative government departments, which outlined a plan and implementation guideline for a controllable nuclear fusion demonstration reactor.

“The main contractor for this project is the China National Nuclear Corporation!”

There was a commotion in the crowd.

Some people’s eyes lit up with excitement.

Other people shook their heads, looking worried and anxious.

The vast majority of people looked bewildered.

Controllable nuclear fusion…

For most people, this was something that they would only see in science fiction movies.

Even just yesterday, a lot of them were discussing designs for the next-generation nuclear fission power plants and the future prospects for nuclear fission development.

However, within a day, their designs seemed to have been tossed into the garbage bin.

Xu Jianfeng, who was standing on stage, didn’t care about the commotion. He knew in his mind that it wasn’t easy for them to digest this information.

He said in a clear and sonorous voice, “Designing, preparing, building… This is the government’s instructions.

“As the leading corporation in China’s nuclear power, we are responsible and obligated to follow the national energy development strategy and stand at the front line of new energy development!

“From now on, the research project for the fourth-generation nuclear fission technology will be suspended. The controllable nuclear fusion project will be the main project for our group and will be executed with the highest priority!

“I know there are many difficulties yet to be solved, but I believe in you, and I believe that we can overcome those difficulties!”

There was a thunderous applause in the conference room.

Xu Jianfeng instructed everyone to be quiet. He gently sorted his documents on the multimedia desk and said in a steady voice, “Our corporation will work closely with the STAR Stellarator Research Institute. At the same time, we will assemble a small team of experts that would be based in Jinling, and we’ll also cooperate with the research team at STAR Stellarator Research Institute.

“I have a list of names here. I will name everyone that will report to Jinling tomorrow.

“I hope everyone who is named will follow the higher-ups’ orders. If anyone has any questions, feel free to ask me.”

This indicated that the conference was about to be over.

The only thing left to do was to announce the names of those who would be part of the Jinling team.

Controllable nuclear fusion…

Su Yiwen looked at the list of names in the CEO’s hand and felt his heart warming up.

Why do I feel like…

I might have the opportunity to witness history.

…

The government’s response was much faster than what Lu Zhou had anticipated.

Three days after he sent out that letter, he received a response from the president.

There were only two words.

[No problem.]

There was a saying—”the fewer words there are, the more information there is.”

Lu Zhou fully experienced this after he received the letter.

The first to arrive was the 43 billion yuan research funding.

His nearly empty research fund was once again filled with cash.

It wasn't just research funding, the relevant government policy support also came along.

After the Communist Party of China released the administrative documents to the relevant departments, the controllable fusion demonstration reactor didn't encounter any barriers. Instead, it was launched at an extraordinary speed.

After consulting Lu Zhou's opinion, this fusion machine would be called the "STAR-2".

The main responsible party for this was obviously the STAR Stellarator Research Institute, and the main contractor was the China National Nuclear Corporation, a leading enterprise in China's nuclear energy field.

From developing and designing nuclear power technology to the design of nuclear power plants, not to mention the production and supply of nuclear fuel, this state-funded enterprise was directly managed by the Communist Party of China, and they had a lot of experience in nuclear-related projects.

There were a lot of small cooperating parties, such as Sinopec Group, State Grid Corporation of China, and other state-owned or state-funded enterprises. In total, there were more than a hundred parties that were involved in this project.

Some of them were giving research funds, some were giving research talents, the others gave both.

In short, all of the issues outside of research were solved by these state departments.

All Lu Zhou had to worry about was how to implement this massive engineering project…

Lu Zhou spent the past few days attending meetings.

Some were internal meetings for the Jinling Institute for Advanced Study, some were for the STAR Stellarator Research Institute, and others were with the companies that were cooperating with STAR…

He already had a rough blueprint in his mind for how to implement a controllable nuclear fusion reactor. However, he couldn't execute this blueprint on his own.

He was the chief designer as well as the person in charge of this massive project. Therefore, it was his responsibility to dissect this research project into multiple sections and subsections. He then had to allocate these small projects to various organizations, pinpoint any particularly difficult problems, and concentrate his resources on those problems.

For example, by digging through the relevant literature, one could find out that research problems such as "recycling and cleansing tritium and deuterium from the plasma exhaust" or "safe confinement of tritium" had been conducted by the Chinese Academy of Sciences.

Therefore, Lu Zhou didn't have to repeat the research himself. He only had to make sure the people or organizations in these research fields had enough research funding so that they could continue their research and find ways to implement their technologies on the stellarator.

As for the more difficult research projects such as the "first wall material", "anti-neutron irradiation material", "proliferation and extraction of tritium", or "tritium stagnation", Lu Zhou wanted to hand them over to the Jinling Institute for Advanced Study.

Three days after the project was launched.

In the STAR Stellarator Research Institute, Lu Zhou met the task force sent by the China National Nuclear Corporation.

The person in charge of the task force was Academician Wang Zengguang, chief engineer of the China National Nuclear Corporation. This old academician had been working in the nuclear industry for many years and had plenty of experience in the design of fission reactors and nuclear power generators.

Even though his experience on fission reactors wasn't fully applicable to fusion reactors, they were both nuclear power, so they still had a lot of similarities.

For example, the design of the generator set.

The old academician brought a design sketch on how to convert the heat energy generated by the reactor into electrical energy.

The concept of a very-high-temperature reactor could be implemented on the nuclear fusion machine.

However, Lu Zhou briefly looked at the sketch and put it down.

“It’s a waste to boil water using such an advanced piece of technology.”

Academician Wang: “But you have to admit, boiling water is still the most efficient way.”

Lu Zhou shook his head and said, “Not necessarily.”

Academician Wang didn’t say anything. He waited for Lu Zhou to continue.

However, Lu Zhou didn’t give an explanation. Instead, he took a piece of A4 paper from his desk. He then picked up a pen and began to sketch on the paper.

After his engineering level reached level four, he could gradually feel the upgrading effects of his engineering level.

If his mathematics level increased his intuition of numbers, ability to calculate, and ability to learn mathematics, then not only did his engineering level increase his ability to absorb engineering knowledge, but it also strengthened his ability to articulate his abstract concepts and ability to convey graphs and numbers.

Like right now.

He had never gone through formal training for drawing engineering blueprints and had only read some related textbooks. However, it was like the muscles in his hands formed a type of muscle memory; all of his strokes were accurate and precise.

Academician Wang looked at Lu Zhou drawing, and his eyes squinted. He had a surprised look on his face.

“You know how to draw technical drawings?”

“Not really.” Lu Zhou smiled and said, “It’s probably because I drew quite a lot of pictures when I was researching topology questions.”

Academician Wang couldn’t believe this explanation.

Even though he had never studied mathematics before, it was obvious that mathematical drawings were completely different than mechanical drawings.

He knew that without a few years of professional experience, one wouldn’t be able to draw these drawings.

Lu Zhou didn’t care if Academician Wang believed him or not, he didn’t have to explain these unimportant matters. He was concentrating on his work at hand.

He first drew a simple outline of the stellarator. Then, he outlined a simple structure of the generator set.

The more he drew, the clearer the lines were. When Academician Wang finally had a rough idea of what was going on, he raised his eyebrows.

“Ferrofluid power?”

“That’s right.” Lu Zhou stopped drawing and looked at the paper. He then nodded with satisfaction and said, “This is the best I can draw. I haven’t made any specific designs yet, so I’m afraid you will have to do the grunt work.”

Just like controllable fusion, ferrofluid energy-generating technology wasn’t a particularly new concept. It actually had a long history.

Looking at its timeline, this concept was first proposed together with the “Gas Turbine Combined Cycle Power Plants (GTCC)”.

In the 1980s, ferrofluid electric energy technology was even included as a key project in the 863 Program. It was rated the same importance as that of nuclear fission power.

The full name of the 863 Program was the “State High-Tech Development Plan”. The projects included were basically the hot topics in the international academic community at that time. Therefore, it was easy to see that the academic community viewed ferrofluid energy as a hot area.

However, the situation changed in the latter half of the twentieth century.

The aerospace and military arms races led to the rapid development of engine and gas utilization technology. The GTCC benefited heavily from this development, which led to it being the main type of power generator.

In contrast, even though ferrofluid technology had a more attractive prospect, it was difficult to achieve due to various technical reasons. Its economic benefits also couldn't keep up with the market demand. Nothing significant came from it for decades, so it was gradually abandoned by the industry and academic community.

Academician Wang looked at the sketch and shook his head. "Forgive me, but ferrofluid energy-generating technology isn't perfect, I'm afraid it's not a suitable choice. The world's nuclear fission reactors are mainly based on pressurized water reactors. I've never heard of any nuclear power plant that's using ferrofluid electricity-generating technology."

Lu Zhou knew Academician Wang would say this, so he smiled and continued, "That might be the case for nuclear fission, but it's not true for nuclear fusion."

"Oh yeah?" Academician Wang looked amused, and he looked at Lu Zhou as he asked, "Why do you say that?"

Lu Zhou: "The difficulty of ferrofluid energy generation is the gas ionization part. It's difficult to heat the gas beam to 2,000 Celsius and form a plasma beam. Even if this is achievable, this process will incur a lot of thermal energy waste. It's difficult to achieve more than a 20% cycle efficiency with ferrofluid electric energy technology… Am I right?"

Academician Wang nodded and said in a serious tone, "That's the gist of it."

Even though there were other problems, this problem was undoubtedly the most important.

There were ferrofluid electric energy generators on the market, so a lot of laboratories had the capabilities of making one. Some were powered by coal, while others were powered by fuel. However, no one was able to achieve an energy conversion efficiency of more than 20%.

But if it was nuclear fusion…

“In the case of nuclear fusion, this problem doesn’t exist.” Lu Zhou looked at Academician Wang’s confused expression and smiled as he said, “After all, the nuclear waste generated by the nuclear fusion itself is helium gas, which is billions of degrees hot.”

Academician Wang’s expression made a subtle change, and he immediately looked at the sketch before quickly realizing what was happening.

Everyone knew that the principle of ferrofluid electric energy was to heat an ionized gas to a temperature of 2,000 degrees. They would then ionize the gas into a conductive plasma beam before cutting the magnetic lines of force to generate an induced electromotive force.

The helium generated by the fusion reaction in the stellarator itself was in the form of a hundred million degrees plasma!

In other words, they didn’t have to spend any energy to heat the ionized gas; they could just utilize the plasma that carried these huge amounts of energy!

Using this technology on coal or petrol generators was undoubtedly a waste. However, it was basically made for nuclear fusion power!

It would be a complete waste to use the high-temperature plasma to boil water.

Academician Wang was still staring at the sketch, and there was a flash of excitement in his eyes.

He looked up at Lu Zhou and said in a cautious tone, “You’re making sense… And this is theoretically possible. However, I can’t give you a definitive answer right now. I have to discuss with the other experts in the task force.”

He then looked at the sketch on the paper again.

“Can I take this technical drawing with me?”

“Of course you can,” Lu Zhou said, “I look forward to hearing good news from you.”

Chief Engineer Wang left the STAR Stellarator Research Institute with the technical sketch. He flew back to the China National Nuclear Corporation headquarters in Beijing on the same day and contacted ferrofluid electric

energy experts at the Academy of Engineering. They began to discuss the feasibility of applying ferrofluid electric energy technology on the controllable fusion device.

However, even though their leader was gone, the China National Nuclear Corporation task force still stayed in Jinling. They were working with the STAR Stellarator Research Institute researchers on technical issues.

At the same time, the STAR machine was undergoing experiments.

After the institute received sufficient research funding, the institute had been conducting experiments almost every three days. Their research targets were hydrogen and helium, and their job was to observe their various complex physical properties in the stellarator plasma.

In order to collect valuable data, Lu Zhou even demanded to mix the 1mg of precious deuterium into the reaction chamber, which had the risk of damaging the first wall material.

In fact, this experiment did actually cause some damages to the STAR machine. Thankfully, the damage was repairable. But even then, the entire machine had to be shut down for at least a month.

Of course, even though the cost was high, the return was also high.

Not only did they verify the feasibility of a fusion reaction ignition, but they also obtained a slice of lithium that was hit by a neutron beam carrying 14MeV of energy.

The scientific research value of the piece of lithium couldn’t be measured with money.

They were probably the only institute in China that could conduct such extravagant experiments.

This hard-fought lithium metal slice was lying quietly in a specially treated oxygen microscope slide. Which was placed under a scanning electron microscope and observed by a worker in protective clothing.

Outside of the isolated room, Lu Zhou and other researchers were standing in front of a computer in the laboratory. Through the computer screen, they were

able to observe the numbers and graphs from the scanning electron microscope.

Just like they had expected, the original smooth metal surface was covered with holes.

Through the infrared spectrometer, they could even see traces of tritium and helium in the metal.

A piece of good news was that this proved the 14meV neutron energy beam did react with lithium-3. This meant they were able to successfully recover part of the tritium used in the experiment.

Unfortunately…

They were facing countless problems.

Professor Li Changxia stared at the graphs on the computer screen and gently sighed.

“I’m willing to bet that this thing will break the instant someone touches it.”

Lu Zhou stared at the hard-fought data on the computer screen and replied casually, “There’s no need to bet. Even if it wasn’t hit by the neutron beam, it wouldn’t be that strong.”

Sheng Xianfu shook his head and said, “It’s not just the radiation damage, the recovered tritium is way too low. And the most important problem isn’t even recovering the tritium. The energy carried out by the neutron beam is too high. Not only did the surface of the lithium-3 react, but so did the interior layers. Even if the tritium was collected in the lithium interiors, we wouldn’t be able to extract it.”

The neutron energy beam carrying 14MeV of energy was like a missile, the metals were no match for this monster.

Also, not only did the neutron beam penetrate a hole in the first wall, but it will form an empty space inside the first wall material, just like a balloon. This could ultimately result in the swelling, embrittlement, and even surface material shedding of the first wall material, which could lead to serious accidents.

This was one of the main reasons why the fission reactor layer material couldn't be used in the fusion reactor.

The two had different orders of magnitude in terms of their radiation-resistant capabilities.

From now on, their research had entered into an unknown field. This meant that there wasn't any more literature they could consult. All of the problems from this point onward had to be solved by themselves.

Professor Li Changxia thought for a bit and suggested, "What if we use molybdenum instead?"

"Molybdenum won't work." Lu Zhou instantly rejected this idea. He shook his head and said, "Molybdenum has decent heat-resistant properties, but it will produce radioactive elements when it undergoes neutron irradiation."

Another researcher suggested, "What about tungsten? Tungsten has good heat-resistant properties, and its by-products are osmium and rhenium, so there's no radiation!"

Lu Zhou didn't even have to speak himself. Li Changxia shook his head and said, "This is a common misconception. Tungsten has good heat-resistant properties, but it is not malleable enough. The thermal stress will cause cracking on the surface of the material… When I was doing an academic exchange in the DIII-D tokamak experiment, there was a specific research project regarding this problem. In short, tungsten won't work."

The laboratory became silent again.

Lu Zhou, who had been staring at the data on the computer screen this entire time, suddenly asked, "If we can't contain the neutron beam inside the stellarator, why don't we let it pass through?"

"Pass through?" Sheng Xianfu paused for a second and smiled while shaking his head. He said, "If we let it pass through, how are we supposed to recycle the neutrons produced by the reaction?"

Recycling the deuterium-tritium neutrons produced in the fusion reaction was a key part of the nuclear fusion technology. After all, the price of tritium was tens of thousands that of deuterium's. It was sold by the grams, costing US$30,000 per gram[1].

If they couldn’t retrieve the neutrons generated by the reaction, not only would they lose a large amount of energy, but the reactor would also “shut down” due to the loss of tritium.

In an ideal scenario, both the tritium and neutron should be able to be preserved as an intermediate product. The final waste should only be helium and heat.

Therefore, they shouldn’t let the neutron just pass through, they had to preserve it no matter what.

Lu Zhou heard Sheng Xianfu’s remarks and smiled.

“Letting them pass through doesn’t mean releasing them. In theory, no matter the design for the first wall material, we cannot avoid the damage of the neutron beam to the metallic bonds. Also, the repair properties of metals are poor, not to mention the metamorphosis problem.

“Hence, why not make first wall material to be something that allows neutrons to pass through and has a strong self-healing ability. Then we can use liquid lithium-3 to recover the neutrons behind the first wall material. As for the side beyond the liquid lithium, we can put a layer of beryllium metal to reflect the unreacted neutrons that penetrate the liquid lithium layer.”

His design was equivalent to sandwiching liquid lithium between the first wall and the beryllium.

Sheng Xianfu lowered his head and contemplated it for a bit. He thought that this method seemed feasible, but he also felt like there were problems.

He thought for a while and came up with two of the most obvious problems.

“But where can we find a material that allows neutrons to pass through and has great self-repairing capabilities? Even after using lithium as the first wall material, we still can’t solve the radiation damage problem. Also, like you just said, after we recover the tritium, how do we carry the tritium back into the reactor?”

When Lu Zhou heard these two questions, he smiled and said, “The second problem is easy to solve. Under liquid lithium’s temperature, both the tritium and helium are in their gas forms. They are incompatible with each other.

“We just have to apply a weak upward force to the neutrons inside the liquid lithium and transport the neutrons to the top of the reactor.

“Then we just need to recycle the gas that comes out of the reactor.”

The generated tritium and the exhaust gas helium would then be injected into the reaction chamber for ionization. As for removing the helium from the reactor, that was the job of the divertor.

As for choosing a water-cooled divertor, a tungsten-copper divertor, or any other divertor, that choice would depend on their specific needs. Even though this part was crucial, it wasn’t something that they couldn’t solve.

Lu Zhou paused for a second and said, “As for your first question, that metal can’t be found in alloys. So how about we discard the entire metal layer?”

Everyone in the laboratory, including Li Changxia and Sheng Xianfu, was frozen.

Getting rid of the metal layer?

This…

Is outrageous, right?

“We’re not using a metal?” Professor Li Changxia looked at Lu Zhou with an astonished expression. He said, “Then what are we going to use?”

Ceramics?

Even though other research institutes had tried using ceramics and produced decent results, the killing factor was the poor thermal conductivity of ceramics.

If they couldn’t remove heat from the reactor, they would end up with other problems.

“We’re going to use carbon.” Lu Zhou paused for a second and said in a confident manner, “Or more precisely, carbon fiber composites!”

Lu Zhou didn’t suddenly come up with this creative idea. He had been thinking about this for a long time, even back when he was still working with Professor Keriber at the Wendelstein 7-X research institute.

The carbon core was relatively stable. It didn't react with neutrons easily. Also, it could act as a buffer for the neutron beam, so when the neutron beam contacted with the liquid helium, it could prevent the neutron beams from instantly breaking down.

The energy reduced by the carbon fiber layer would be released in the form of heat energy. Due to its stellar thermal conductivity properties, the heat energy generated inside the reactor could be easily diverted.

It also had good heat-resistant properties.

When it wasn't exposed to air and oxidants, carbon fiber could withstand temperatures above 3,000 degrees. This was comparable to the melting point of tungsten, which met the requirements for the first wall material!

Lu Zhou looked at the people in the laboratory and said, "Remove the first wall metal layer completely. Use carbon fiber as the main structural material. Then fill in liquid helium in the middle layer and use beryllium on the outer layer to reflect the neutrons. The shielding layer should be a mix of paraffin and water carbon carbide, covered with nuclear-grade cement. If all of this is successful, we will solve the tritium retention problem!"

As for the choice of carbon fiber composite materials and the self-repairing component, that research project would be conducted by the Jinling Institute for Advanced Study materials research division.

Even though the problem was severe, Lu Zhou had a feeling that he would be able to solve it!

Professor Li Changxia couldn't help but say, "This is too…"

What he wanted to say was that this was too outrageous.

However, before he could finish, Sheng Xianfu interrupted him.

"No, maybe… this could work!"

Sheng Xianfu rubbed his chin with his finger as his eyes began to light up.

"I've read the relevant literature on replacing tungsten and steel structures with carbon fiber. The international academic community is optimistic about this technical route, just like nanoceramics!

“However, using carbon fiber composites to completely replace the metal as the main body of the reactor and to allow the neutron beam to react with the liquid lithium outside the first wall before recovering the tritium in the liquid lithium… This is my first time hearing about something like this.”

The difficulty involved in something like this was high. They had to face carbon fiber composite problems. For example, the problem of temperature. The carbon fiber composite material had an operating temperature of around 3,000 degrees, while the boiling point of lithium metal was only at 1,340 degrees.

If they couldn’t transfer the heat in time, the liquid lithium could risk being vaporized, which could result in it being mixed in with the tritium reaction. This could blow up the whole reactor…

There was also the volume changing problem where the lithium liquid would be solidified after the machine was turned off…

However, just like Lu Zhou had said, this idea might be feasible.

It was at least worth a try!

The conference after the experiment continued into the evening.

Lu Zhou and the other researchers in the institute began to discuss in detail about the “liquid lithium neutron recovery” technical route.

Even though they hadn’t made a specific plan, through this meeting, they had reached conclusions regarding the feasibility and general framework of this technical route.

After that, they just had to summarize the meeting contents and compile all of the problems. They would then host another meeting or two to come up with a relatively complete plan of attack.

The next meeting was set to be in three days. As for the next three days, Lu Zhou decided to give all of the researchers in the institute a small holiday.

Firstly, over the past year, these researchers hadn’t had the chance to take a break. They needed to spend time with their family or girlfriend. Secondly, the neutron beam generated by the fusion reaction caused significant radiation damage to the first wall material. Not only was there a hole in the austenite

structure material, but a layer of fluffy-looking metal scraps was formed on the surface.

This was a very interesting phenomenon.

Even though no one knew the science behind it.

Even Lu Zhou, the big-name Nobel Prize winner, couldn't come up with a suitable theory to explain this phenomenon. His initial guess was that the material underwent thermal stress. However, perhaps only the plasma inside the stellarator knew the true reason.

Lu Zhou planned on abandoning the idea of using austenite. He didn't want to dive deep into this research area.

In short, because the equipment had to be overhauled, they would have to wait at least another month until the next experiment.

When Lu Zhou got back home, the sky was basically pitch black.

When he opened the front door and walked inside, a small but sophisticated four-rotor drone flew by.

"Master! Welcome home!"

Lu Zhou looked at the shaky little guy hovering in the air and couldn't help but smile.

He felt quite nostalgic. This drone was named "Little Buddy"; it was a gift from the members at the Princeton drone club, which he was a consultant for.

After he took the drone back to China, he made some simple modifications and gave it to Xiao Ai.

Xiao Ai obviously loved this flying toy. Under Xiao Ai's request, Lu Zhou installed a speaker, changed the motors, and attached four short but dexterous motorized claws at the bottom.

Not only did Xiao Ai look after the house, but using this modified "Little Buddy" and other smart home devices like vacuum robots, Xiao Ai often helped do the chores around the house.

Of course, even though Lu Zhou gave Xiao Ai the right to control these devices, he imposed strict restrictions and code of conduct on its scope of activities.

For example, Xiao Ai could only operate within the Zhongshan International area and was forbidden to fly into other people's yards or to move fragile items.

Xiao Ai strictly obeyed Lu Zhou's orders. After all, no matter how smart it was, it was still a program. Its obedience was part of its core code.

"Um, Master, can you please do something for me?"

Lu Zhou put on a pair of slippers and walked toward the living room as he said, "What?"

Xiao Ai flew next to Lu Zhou and continued, "Can you add an LED display on the drone? Speaking of which, it feels weird talking in some other woman's voice. I prefer communicating through text. Embarrassed."

Lu Zhou: "…"

What the hell do you mean by another woman's voice? Isn't this just Google text to speech? You can just change it to a man's voice, right?

Also, why is it reading out loud its emotions? Is it trying to show off its upgraded emotional capabilities?

Why do I feel like Xiao Ai is going toward a strange direction…

Lu Zhou: "I refuse."

Xiao Ai: "Why?! About to cry."

Lu Zhou looked at the flying thing in the air and sighed.

Do you really need to ask?

Because I can't be bothered to do it.

Also, Lu Zhou couldn't imagine what it would be like if there were a flying LED screen showing texts and emojis.

Basically, he wouldn’t do anything that was a burden and didn’t benefit him.

Xiao Ai: “Then can you install an arm? I can control it myself… Cry.”

When Lu Zhou heard this ridiculous request, he couldn’t help but say, “I’ll just build a robot for you. Do you want a Doraemon or a Dorami?”

Xiao Ai’s drone stopped hovering, and it went silent for a bit.

Lu Zhou guessed that it was probably searching for what “Dorami” was. It probably already downloaded a complete set of data on his server and began “searching” through the data.

Lu Zhou shook his head. He turned around and went into his bathroom to take a shower.

Lu Zhou put on his pajamas. He then walked into the kitchen and made himself a cup of coffee. He then went into the study room and sat in front of the computer as he browsed through the web.

Because his work recently had gotten so busy, he barely had the time to browse the web. He only heard from the other researchers that their thesis on Science attracted attention from all over the world, and they were on the trending page again or something.

Speaking of which, ever since he received the Nobel Prize, he had paid very little attention to what the media was saying about him, and he rarely accepted any interviews from reporters.

However, both the Chinese and Western media’s interest toward him hadn’t diminished.

Especially when he produced some kind of new research results.

Lu Zhou briefly looked at a few articles. He grabbed his cup and took a sip of the coffee.

Chinese reports regarding controllable fusion were basically all about the STAR machine and the 60-minute world-record. Zhou Chengfu hadn’t come out and said anything yet. He probably was hiding with his tail between his legs. Lu Zhou didn’t know if he didn’t have anything to say or that no one wanted to run a report on him.

Other than that, compared to Chinese media, Lu Zhou's attention was more on the Western media.

The success of the STAR machine certainly boosted people's confidence in the controllable nuclear fusion field. Lu Zhou wanted to see the reactions of his peers and if anyone was triggered.

Suddenly, a news headline caught his attention.

It was a CNN news video.

The United States Secretary of Energy, Perry, stood at a press conference and faced the reporter's camera. He gave a speech on the recent development in the controllable nuclear fusion field and responded to the rumors that the US intended to withdraw from ITER.

"The United States' stance on future energy development hasn't changed.

"… We have invested tens of billions into fusion energy research projects. Since the 1950s, we have been at the forefront of controllable fusion technology.

"I have to reiterate here that the United States has no intention to withdraw from ITER. I haven't seen any documents regarding this on my desk.

"We will work closely with our allies in the study of fusion energy, and we will do our best to increase our research institutes' contribution in this area.

"If everything goes well, we will complete the construction of a controllable fusion demonstration reactor by 2030 and commercialize controllable fusion energy by 2050!

"We will complete our goal and fulfill our promise to our allies…"

Lu Zhou watched the secretary of the United States Department of Energy through his screen. He then murmured to himself while rubbing his finger on the mouse, "… Looks like the Americans are in a hurry."

Just like the United States Department of Energy, Lu Zhou could also ask other Chinese government departments to help him.

Also, China and Russia had an advantage in controllable nuclear fusion technology. This was one of the driving factors for the Congressional Budget Office to spend money on this research area.

In Lu Zhou's opinion, the competition for the future of controllable nuclear fusion had begun.

From now on, not only would the rocket scientists and nuclear engineers have visa application issues, but so would the controllable fusion researchers…

Chapter 524: Kick Them Ou

Chapter 524: Kick Them Out

Interestingly enough, while Lu Zhou was relaxing and drinking coffee while watching a video of Perry talking to reporters, across the Pacific Ocean, in the United States Department of Energy office, Perry was looking at a photo of Lu Zhou.

However, Perry wasn't as relaxed as him…

Two weeks ago, the Jinling controllable fusion research institute made a breakthrough in plasma confinement time. This shook the entire plasma physics community.

Over the past two weeks, Perry had received at least 30 written letters regarding this matter.

Some were from the National Academy of Sciences, others were from the PPPL at Princeton.

In particular, the letter from the National Academy of Sciences contained a signature of the winner of the Nobel Prize in Physics and former Secretary of Energy, Steven Chu.

Not only did this letter portray the importance of controllable nuclear fusion energy, but there was also one central idea, which was money.

Also, there were letters from the CIA, but they didn't contain anything worth noting.

Rather than learning about Lu Zhou's personal information and his shining academic achievements, Perry wanted to know about China's controllable nuclear fusion advancements as well as how far China was from mature nuclear fusion technology.

Unfortunately, this all happened too fast.

Before the STAR machine completed a one hour magnetic confinement time, no one believed that they would succeed. Even the Chinese people didn't believe it.

Didn't they say even two minutes would be difficult?

That's what the head of the China International Nuclear Fusion Energy Program Execution Center told me!

"What a complete idiot…"

Perry threw the document on the table and couldn't help but curse.

He didn't need anyone to tell him the importance of controllable nuclear fusion technology, he was well aware of its significance.

However, he also knew how expensive this research would be.

Instead of the useless CIA reports and information, what he needed was advice from experts.

Perry sat in his office chair and thought for a bit. He made up his mind, stood up from his chair, and walked out of the office.

He looked at his assistant sitting outside his office and demanded.

"Gather the NIF 1 project directors, and the head of the PPPL controllable fusion energy project… I don't care where they are, I want to see their a*ses here by tomorrow."

"I understand, sir."

Looking at how serious Perry was, his assistant immediately knew the importance of this matter, and he immediately began to reach for his telephone.

Perry nodded and was ready to leave.

Before attending the meeting, he had to go to the White House first.

But he suddenly remembered something. He stopped his footsteps and looked back at his assistant, who was on the phone.

“Also contact the CIA, remember to ask them to send someone reliable.”

…

Around six or seven years ago, the US$3.5 billion NIF project failed, which tumbled the American controllable nuclear fusion research industry. It even affected the entire international nuclear fusion field.

The inertial confinement fusion technical route was almost terminated. If it weren’t for this laser ignition machine, which could still undergo some nuclear tests, the entire project would have been scrapped by the Congressional Budget Office.

The tokamak was the only device that could still receive some research funding, but it wasn’t as easy as before.

Especially because none of the countries wanted to spend more than the others on ITER funding, not to mention America had intentions on withdrawing from the ITER Organization. The future of the controllable fusion was gloomy.

However, no one expected that the light under the Purple Mountain would illuminate the entire world…

Right now, Ed Moses, head of the Lawrence Livermore National Laboratory for the National Ignition Facility, was sitting in the office of the Department of Energy.

Sitting next to him was Terrence Brog, head of the PPPL controllable fusion laboratory, and several of his friends, who were also in the controllable fusion field.

This wasn’t their first time being summoned by the higher authorities.

Every month or so, they would be summoned by the Department of Energy or the Congressional Budget Office, who would ask them why they needed their budgets to be increased.

They were big money spenders; negotiating with bureaucrats on the topic of research funding was almost a part of their daily research.

However, unlike the past, this time the Department of Energy didn't summon them regarding budgeting issues…

The pair looked at each other with surprise in their eyes.

Obviously, there were other people outside of the Department of Energy in this room. There was a low-key man in a suit, who didn't fit in with his surrounding environment.

"Let me introduce myself, I'm Helms, CIA."

When Ed Moses heard the word CIA, he raised his eyebrows in interest.

"When did the CIA become interested in the NIF?"

"I'm not very interested in the NIF. Rather, I'm more interested in the PPPL." Helms spun the pen in his hand and looked at Brog as he said, "Mr. Terrence Brog, I've heard that you have worked with Professor Lu Zhou in the past, is this true?"

Brog nodded and said, "Yes."

Helms: "What type of person do you think he is?"

Brog said, "You should ask his supervisor or his students about this question. I don't know about his personal life, our communication is strictly professional."

"His professional side is what I want to know." Helms flipped through his notebook and said, "Our people have noticed that around two years ago, a transaction happened from an overseas account into the research fund account."

Brog: "During his time at Princeton, he served as a consultant for the PPPL on the He3 project. We ran into funding issues at the time, so he helped out a little."

Helms asked, "Can you explain in detail the contents of the He3 project?"

Brog: “It’s about the insertion and observation of He3 particles in the fusion machine’s plasma… If you think that this project gave the STAR Institute critical technology, then rest assured. Nuclear fusion technology is important, but the research results itself is available to the public. If you don’t know what I mean, you can go ask your physics professor.”

Helms twisted the ballpoint pen in his hand and wrote on his notebook as he said, “Unfortunately, my major in university was psychology, I haven’t studied physics before.”

Brog quietly muttered, “You must have learned it in high school.”

Helms either pretended like he didn’t hear it or he really didn’t hear it. He ignored Brog’s comment and looked at Moses for a second.

“If they didn’t use the technology from PPPL, I want to know why a research institute that was established less than a year ago, using a second-hand stellarator, was able to produce such incredible results.”

Ed Moses coughed and said, “The answer is simple. The Chinese are willing to invest money into this technology. Even though most of our problems can’t be solved with money alone, but when this money is correctly used by the right people, the situation is different.”

Perry, who was sitting at the other end of the conference table, said, “Your research funding is almost just as much as theirs. Are you saying that you didn’t use the money in the right places?”

Ed Moses looked at him with an awkward expression as he said, “Of course I’m not saying that, I can guarantee that every penny is used in the right place… But, trial and error is part of research.”

Helms didn’t care for Ed Moses’ reply, he looked at his notebook and continued to ask a lot of questions.

Some were regarding their cooperation with ITER, others were about the STAR Stellarator Research Institute.

The meeting lasted for around two hours.

After the meeting was over, Perry dismissed the summoned experts and asked Helms.

“What do you think?”

Helms used to work in the diplomatic system, so Perry obviously wouldn’t take his advice too seriously, but it was worth consulting.

Helms looked at the notebook in his hand and thought for a bit before speaking.

“According to our reports, China has already launched a controllable fusion demonstration reactor project. However, judging from the meeting just now, other than that Science thesis, our experts have no understanding of the STAR research institute whatsoever.

“Combining the facts, we can assume that China has borrowed a lot of technology and research from the ITER project. They stole their technology from us, but they don’t want to share their research. I think this is unreasonable.”

Perry raised his eyebrows with interest. “So?”

“So, I suggest to negotiate with the Chinese, to let the STAR research institute disclose more technical details.” Helms paused for a second and said in a serious tone, “Otherwise, we’ll kick them out of the ITER project.”

Around two months ago, when Lu Zhou’s research was at its busiest, he often thought that when he had more free time, he would go outside and do something he normally wouldn’t.

However, when he had free time, he found out that he wasn’t interested in the plans he made anymore.

No matter where he went, it wasn’t as comfortable as being in his own home, especially in his own study room.

This was the only room in the mansion where he could feel relaxed and at peace.

However, the only downside was that whenever he was here, his mind would inadvertently drift to the unsolved research project topics.

Even though the process of creating knowledge was enjoyable, if he was studying these problems during his vacation, then there would be no point in having a vacation in the first place.

Lu Zhou recently discovered how important it was to have a hobby not related to research.

Lu Zhou thought back to how he relaxed when he was in Princeton. On the second day of his holiday, Lu Zhou was feeling cabin fever, so he sat in Wang Peng's car and came to Jin Ling University.

Lu Zhou originally just wanted to walk around the campus. He didn't expect to run into Principal Xu, who invited him to his office.

Principal Xu asked his assistant to make two cups of tea. He sat on the sofa and began to chat.

"How is it? Are you used to being here?"

Lu Zhou smiled and said, "Why are you putting it like that? You sound like I haven't been here in a long time."

Professor Xu smiled and said, "I didn't ask about your personal life, I meant the research side. You're living in Zhongshan International now. All the professors at Jin Ling University worship you, are you not satisfied?"

He paused for a second and said, "There must be a difference between the Chinese and international research institute environment."

Lu Zhou said, "There is definitely a difference, but I think it's whatever."

At the very least, Lu Zhou was pretty satisfied with his own Institute for Advanced Study.

"Speaking of which, how is your controllable fusion project going?" Principal Xu suddenly remembered something and added, "Ah, if you can't tell me, just pretend like I didn't ask."

Lu Zhou shook his head and said, "There are no secrets, the research is available to the public anyway. Everything is being done step by step. The eyes, brain, and two legs are all in place. There are only some small problems, like the torso that needs to be created."

The “eye” was the He3 atom probe technology, the head was Xiao Ai’s supercomputer, the legs were the outer field coil, made from SG-1 superconducting material, while the torso was the reactor itself.

Strictly speaking, there were also two “arms”, which were the ferrofluid electric generators, but that was handled by the China National Nuclear Corporation.

Principal Xu sat up straight in surprise and said, “Does this mean there’s hope?”

Lu Zhou sighed and said, “It’s difficult, the torso is probably the most difficult.”

From the carbon fiber composite to the first wall liquid lithium neutron recovery system, there were way more problems than he had anticipated.

The only fortunate thing was that he had a rough feasible idea on how to solve these problems.

All he had to do now was to follow these ideas and solve any other problems along the way.

Lu Zhou picked up the teacup on the table and diverted the conversation.

“Let’s not talk about nuclear fusion anymore. I’m on holiday now, and the reason I came here was to get away from the research project.”

Principal Xu smiled and said, “If you really wanted to relax, you should have gone fishing or hiking, why are you at a college? Oh yeah, school is starting in September. If you aren’t busy, how about you say a couple of words at the opening ceremony?”

Lu Zhou smiled awkwardly and said, “I’m not busy, but I don’t have anything to say.”

Principal Xu smiled and said, “I’m not asking you to speak for long, just say a couple of words. Even just one sentence is fine. If anything, most of the students at Jin Ling University this year applied here because of you.”

“I’ll see. If I’m free, I’ll definitely come.” Lu Zhou suddenly remembered something, and he smiled and said, “Oh yeah, last time you said I would become a tenured professor here. It’s been half a year since I’ve been back, so where is my offer?”

Professor Xu said, “You want to become a professor at Jin Ling University?”

Lu Zhou joked, “Does my alma mater not welcome me?”

“Not at all, why didn’t you mention this earlier!” Principal Xu slapped his thigh and laughed. He said, “The reason why I never brought this up was that I didn’t want to waste your time. If you really want to come back and teach, you can become the dean of any department you wish for; chemistry, physics, mathematics, whatever you want!”

Originally, Principal Xu wanted to bring this matter up, but he didn’t expect the situation to suddenly change. After Lu Zhou returned to China, Lu Zhou immediately became the chief designer on the Chinese project and an academic leader in the controllable nuclear fusion field.

Normally speaking, even if the school offered millions in research funding, not many people would be willing to teach undergraduate students.

Anyone at the academician level that controlled a few dozen projects, not only were they bored at teaching undergraduate students, but they often ignored their PhD students as well.

After all, there weren’t many people that would think that teaching was a fun and interesting thing.

Therefore, the principal didn’t mention this matter.

However, he didn’t expect Lu Zhou to bring up this matter, making this was a wonderful surprise.

“Forget about becoming a dean, I can’t handle an administrative position. Just give me a mathematics department office.” Principal Xu looked eager, so Lu Zhou looked at him and said, “If I can’t teach the classes well, it’ll only affect the students’ final exam marks. If I do a bad job at being the department dean, I’ll ruin the students’ futures.”

For Lu Zhou, thinking about simple problems outside of research relaxed his tight brain, and it also gave him inspiration.

Not to mention, research couldn’t be done by one person alone. If he could train a couple of talented students, it would make his life much easier.

He would pass on doing administrative work.

After all, he didn't have any desire for things like power.

"Okay then, if you don't want to work a management role, we won't force you. It's decided!" Principal Xu smiled and said, "From now on, our Jin Ling University is a Nobel Prize level school."

Lu Zhou smiled and said, "Hasn't it always been?"

Principal Xu: "There's a big difference between an honorary professor and a working professor. I'll ask someone to handle the procedure for you. In a few days' time, when you're free, go pick up your stuff at the administrative office. If you don't have time, I can find someone to send it to you. Purple Mountain is closeby anyway."

Lu Zhou: "I'll pick them up myself…"

Suddenly, they heard a knocking sound from the office door.

A respectful yet unfamiliar voice traveled through the office door.

"Is Professor Lu there?"

…

Europe.

Wendelstein 7-X research institute.

The equipment was slowly shutting down, Professor Millek, president of the Helmholtz Association of German Research Centres, stared straight at the device. He spoke with a poker-face.

"What's the result like?"

Professor Keriber took a deep breath and replied, "We've tried to improve the control scheme. There is a slight increase in the plasma confinement time, but we're still quite a long way from one hour."

Millek: "Be more specific."

Keriber looked at his assistant next to him as his mouth twitched bitterly.

“… We increased it by 102 seconds.”

If this were a few months ago, an increased confinement time measured in seconds would be an exciting achievement. It could even be counted as an in-progress result, with press conferences and media reports.

But now, the improvement measured in seconds had lost its meaning…

Professor Millek nodded and didn’t say anything.

He was the only one that came here; he wasn’t accompanied by government officials. As a scholar himself, he knew he shouldn’t put all of the blame on Keriber.

Any research project had its own development speed; impatience would only cause trouble.

Millek went silent for a while before he suddenly said, “The Americans are planning to kick China out of the ITER organization.”

Professor Keriber’s heart was shocked when he heard this, and he gasped in disbelief, “Why?!”

“The reason is intellectual property… Or rather, the excuse. After all, there are a lot of specifics that aren’t clear to me.”

Keriber: “… Will the ITER Council agree?”

Professor Millek replied, “If they have to, they will.”

Keriber had a complicated expression on his face as he said, “What about the funds that come from China? Just looking at it from the monetary perspective alone…”

Professor Millek: “The United States promises to cover the funding.”

Keriber complained, “Another promise? They’ve never even fulfilled their past funding promises!”

“There’s no point for us to discuss this. After all, we haven’t fulfilled our own promises.” Professor Millek looked at Keriber, who was triggered. He then added, “Also, I’m just giving you the facts.”

Keriber took a deep breath and calmed down. He quietly muttered, “I don’t understand, why don’t they leave themselves?”

Ten years ago, the Americans had been yelling about leaving ITER. Now, not only were they not leaving, but they were kicking other people out of ITER.

Professor Millek went silent for a while. He pretended like he didn’t hear anything and sighed.

“ITER is considering to adjust the planned tokamak demonstration reactor to a stellarator demonstration reactor. Fortunately, the tokamak project hasn’t started yet, so the loss isn’t too big. I’m guessing after the next conference, the relevant official documents will be released. The Wendelstein 7-X, which is you guys, will play an important role in this.”

Professor Keriber smiled bitterly and said, “So you’re saying, you want us to ‘go toe-to-toe’ with Professor Lu?”

This is asinine.

Scientific research isn’t a boxing match.

Instead of having a winner and loser, it’d be better to cooperate and form a win-win situation.

Especially for research regarding mankind’s future, cooperation is far more meaningful than a competition.

As if Professor Millek understood what Professor Keriber was thinking, without expressing his own opinions, he gently nodded.

“You can think of it like this, we have to be ahead of China.”

Chapter 526: The Higher-ups Value Your Opinion

Chapter 526: The Higher-ups Value Your Opinion

In November 1985, the United States “Air Force One” arrived in Geneva. The US president at that time, Ronald Reagan, met with the new leader of the

Soviet Union, Mikhail Gorbachev. They began negotiations on nuclear disarmament.

The Iron Curtain was in effect at that time. All in all, this “meeting” was generally considered as one of the ice breakers for the cold war.

However, the first meeting between Reagan and Gorbachev didn’t go as well as expected. The two parties were discussing the “Strategic Defense Initiative” as well as the debate on human rights and “regional issues”. The meeting looked like it was going to end on a bad note.

At the end of the meeting, around five o’clock in the morning, the two parties finally agreed to issue a joint statement, which didn’t contain any actual promises.

At the end of this joint statement, these two world leaders announced an ambiguous statement, which was that the two countries would develop a new energy source that was in the common interest of mankind.

This was the origin of the ITER.

Therefore, about the rumors that America would leave ITER…

Keriber himself knew that this would never happen.

Even though the United States had never fulfilled its 25% research funding promise, ITER itself was a politically-motivated project.

Normally, research on controllable nuclear fusion was a “lone island”, away from all the politics.

However, the premise for this was that no one knew how far in the future this technology was.

Thinking about this from a logical perspective, if he had to choose between working at an American research institute versus cooperating with Professor Lu, he would undoubtedly choose the latter, to cooperate with the scholar who had already made significant achievements in the fusion field.

Unfortunately, as a researcher, he had no power in this matter.

Even the Helmholtz Association of German Research Centres, who was backing him, had no power.

If the United States put pressure on ITER through the EU and used intellectual property protection as an excuse, kicking China out would be a piece of cake, just like what happened to the Galileo plan.

When Professor Millek turned away and began leaving, Keriber looked at him with a hint of worry on his face.

Strictly speaking, these weren't problems that he had to think about.

But if his fears really came true, then the ITER Organization might face its collapse.

After all, this organization was never that stable; everyone was only tied by the same dream.

No one really placed their energy dreams on the futuristic controllable fusion energy. However, as he sat in this coffee shop, he could hear students from the University of Greifswald chatting about what would happen after controllable fusion technology became a reality.

It was hard to tell if the light at the Purple Mountain would really ignite the future energy field or blow out the last flame.

If they didn't have any expectations from the beginning, maybe they could've gone further?

…

A man in his early thirties knocked on the office door; he had a lanky figure.

According to him, his name was He Mingxuan, secretary for the Energy Bureau, Director Lu's right-hand man.

When Lu Zhou went to Beijing, he met this guy before, but they didn't communicate.

Even though Lu Zhou didn't know what the Energy Bureau wanted from him, he still politely invited him to sit down.

He Mingxuan sat down next to Principal Xu, which was across from Lu Zhou. He said in a sincere manner, "I originally planned to visit you at Zhongshan International, but you weren't there. This situation is urgent. My apologies for bothering you."

“It’s fine, you don’t have to be this polite, I’m on vacation anyway, so I’m not busy.” Lu Zhou looked at Secretary He and said, “Actually I want to ask, why are you in such a hurry?”

Principal Xu noticed Secretary He looking at him, so he smiled and put down the teacup.

“It seems that you two have matters to discuss, I won’t be in your way.”

The principal had participated in many national-level scientific research projects, and many of them had sensitive information. He knew exactly what he should and shouldn’t listen to.

The old man stood up and left his office.

Secretary He looked at the office door. When it was closed, he sighed and put on a more serious face as he said, “The Americans are planning to kick us out of ITER.”

When Lu Zhou heard this sudden news, he frowned. “Is the source reliable?”

Secretary He nodded and said, “I’m 90% certain. In fact, they’ve had this idea for quite a long time.”

When Lu Zhou heard this, he couldn’t help but worry.

This was definitely not a piece of good news for him.

The STAR-2 project was similar to China’s original CFTER project; it wasn’t affiliated with the ITER project. However, various research institutes around the world more or less benefited from ITER.

If China was to leave the ITER project, not only would it mean that its previous tens of billions of “subscription fees” paid to ITER would all go to waste, but it would also mean that China’s controllable nuclear fusion research institutes that were doing academic exchange with other international research institutes under ITER would also be interrupted.

Other than the research losses, the billion-dollar contracts with Chinese companies would also face the risk of being replaced.

Lu Zhou didn’t know a lot about diplomatic affairs, but from a scientific research perspective, this was undoubtedly a heavy blow.

Lu Zhou frowned and asked, “What’s America’s reason for doing this?”

“Their reason is intellectual property. United States experts on the ITER board of directors have asked us questions. They think that we have concealed our research results while taking in technology, which violates the spirit of ITER…” Secretary He had a bitter smile on his face as he added, “Of course, they don’t need a reason.”

That’s right, they didn’t need a reason.

After hearing the secretary’s explanation, even though Lu Zhou understood the meaning behind it, he still shook his head.

“This is outrageous. We’ve done our duty in disclosing the research progress on the controllable fusion project. We are not obligated to disclose any additional research. If the STAR computer uses Intel’s chips, does that mean we can ask them to disclose their chip technology?”

Secretary He silently took out his notebook and wrote down Lu Zhou’s words.

Lu Zhou looked at the notebook and paused for a second before asking, “Why are you taking notes?”

“I think you put it nicely.” Secretary He smiled helplessly and said, “At least… we can repeat that when we deal with diplomatic affairs.”

However, logic and reason had never been effective.

Lu Zhou took a moment to process all of this before asking, “What are their specific requests?”

Secretary He: “They’re asking to send an academic visiting team composed of ITER members to permanently reside at the STAR Stellarator Research Institute, and that they would be involved in the research. They’re also asking us to release the latest production technology of the SG-1 superconducting coil and all of the technical details for the modified STAR stellarator as well as the control scheme.”

Lu Zhou began to contemplate.

The superconducting material was an easy deal. The SG-1 material itself had a public patent while the SG-1 wires were exported to other countries. The

only secret involved was the production process technology developed by Baosheng Group with the assistance of the Jinling Institute for Advanced Study.

Regardless of whether they released the technology or not, it didn't have anything to do with Lu Zhou.

However, the control scheme was a big problem.

The control scheme that the Jin Ling University computer science department developed was definitely worse than that of Wendelstein 7-X laboratory's.

The reason why the STAR machine could achieve a one-hour plasma confinement time was partly due to the SG-1 superconducting material, but Xiao Ai deserved most of the credit.

In short, there was no way he would ever release the control scheme.

Making a request like this was ridiculous.

Seeing that Lu Zhou didn't speak for a while, Secretary He asked in a serious manner, "This thing is tricky. After we heard the news, we held meetings for two days straight, but we haven't made a decision. The higher-ups value your opinion. If Director Lu were free, he would've personally came to Jinling to visit you.

"In your opinion… What do you think we should do?"

Chapter 527: The Thought Behind the Gif

Chapter 527: The Thought Behind the Gift

"In your opinion… what do you think we should do?"

Secretary He was asking for his advice in a humble manner.

Lu Zhou became silent.

This was a difficult question to answer.

Putting it bluntly, he wasn't an expert in international relations. He was only responsible for matters in scientific research.

Lu Zhou thought for a bit and slowly said, "I'm not the one that should answer this question. I'm just a scholar, I'm not a diplomat. The only thing I can promise is that before 2025, we will create a demonstration reactor."

Lu Zhou paused for a second. He looked at Secretary He in the eye and continued, "If you really want to hear my opinion, I think the key to this problem is how we plan on using this technology."

He Mingxuan: "Plan on using?"

Lu Zhou nodded and said, "Yes."

It was very difficult to monopolize a known technology.

Whenever the use of a piece of technology was present, the difficulty in solving that technology would reduce exponentially.

An example of this was the Manhattan Project. This project gathered all of the top western non-German scientists. More than 100,000 people participated in this project, in which they spent two billion USD to successfully create the first atomic bomb. President Truman even complained that the cost of developing an atomic bomb was more expensive than buying the entire universe…

Obviously, Truman's complaint was an overstatement. But it still showed how expensive the costs were at that time.

However, the nuclear tests that followed obviously didn't cost as much.

If the "STAR-2" project was successful, China would be able to start an energy revolution, but it probably wouldn't monopolize this technology.

The principle of maximizing gains was to use one's technological advantage in a field to expand one's influence and become the standard in the field, which would then cause everyone else to try and catch up to that standard.

Of course, the most important thing was that they could use fusion energy as leverage, to exchange for China's political and governance interests.

Secretary He went silent for a while.

“The thing you just talked about, we haven’t discussed it in the meeting.”

Lu Zhou nodded and said, “I understand, after all, these things are far away in the future.

“But what I want to say is that if we are only planning to be a participant in the international community, then we can give requests of our owns in exchange with America’s demands.

“However, if for example, we want to become the one that sets the rules…”

Lu Zhou went silent for a bit before he continued, “Then the suffering and obstacles on the road are inevitable.”

When Secretary He heard this, he couldn’t help but hold his breath.

The one that sets the rules…

This sounds…

This really is an emotionally intense sentence.

He tightened his fists, which were resting on his knees, and slowly relaxed. He kept repeating this motion and took a deep breath.

He wasn’t a decision-maker; he was only someone that conveyed opinions. However, at this moment, he felt the need to ask on behalf of Director Lu and the country’s higher-ups.

Secretary He’s heart was beating out of his chest. “What happens to the STAR-2 project if we exit from ITER?”

Lu Zhou thought for a bit and answered confidently, “There will be an impact, but not a lot.”

He Mingxuan finally had a smile on his face.

“Since you put it like this, we are relieved! I will convey your opinions to the higher-ups.”

Lu Zhou nodded.

“Please make sure you do.”

The secretary didn’t want to stay in the office for long.

Secretary He planned to immediately return to Beijing, so he chugged the tea and bid farewell to Lu Zhou.

Lu Zhou accompanied Secretary He downstairs and was about to leave as well. He was contemplating whether or not he should say goodbye to Principal Xu when he suddenly ran into him.

When Principal Xu saw Lu Zhou standing downstairs alone, he walked over with a stack of documents in his hand and smiled.

“You guys are done?”

“Yeah.” Lu Zhou smiled awkwardly and said, “My apologies for borrowing your office.”

“It’s fine, not a big deal, your matters are more important.” Principal Xu waved his hand and smiled. He handed a document to Lu Zhou and said, “I had nothing to do when you were in my office, so I went over to the academic affairs office and finished the hiring process for you.”

Lu Zhou took the document from Principal Xu’s hands and asked, “Hiring process?”

Professor Xu smiled and said, “Didn’t you say you wanted to be a professor here? Sign this document, and you’ll be a member of our mathematics department!”

Lu Zhou was surprised. “Already?”

Principal Xu said, “It’s better to get this sorted now before you sleep on it and change your mind.”

Lu Zhou laughed and said, “That’s not going to happen. Okay then, I’ll sign this document. I’ll bring it back to you tomorrow.”

Principal Xu: “Are you not going to ask about the salary?”

Lu Zhou smiled awkwardly.

“It’s on the document anyway. I’ll just look at like later. I’m not in a hurry either. Or maybe you can tell me now?”

“I’ll just tell you now. If you read it later, you’ll probably think it’s too low and blame me.”

Principal Xu smiled and pause for a second. He then said, “As for your compensation, actually we had a meeting about this last year. Our final decision is an annual salary of 4 million yuan, with 5 million in housing subsidies… I know you probably don’t care about this pocket change, but this is the highest compensation we can give you. As for your research funding, since you’re already the manager of a 40 billion yuan project, I’m guessing you don’t need any additional research funding, and I won’t embarrass myself with an offer. But if you have any other needs, make sure to tell me, and we will try our best to help you!”

Lu Zhou smiled and said, “What do you mean by pocket change? This is higher than my salary at Princeton.”

Shuimu University was the top university in China, and the salary for their “Nobel Prize level scholar” was only 1.7 million yuan a year.

A 2 million annual salary was basically the upper limit for academicians.

As for the eight-figure salaries posted in newspapers, most of them included benefits such as housing and insurance. The most significant one of them all was scientific research funding.

Jin Ling University gave him an annual salary of four million, which was double the usual maximum professor salary. Principal Xu himself had to have gone through a lot of debates and discussions to secure this for Lu Zhou.

For Lu Zhou, he didn’t need nor care about the annual salary.

But he was quite touched by this gesture from his alma mater…

…

Once the energy problem was solved, many other problems would be solved as well. However, there would be more problems that follow.

Just looking at the present alone, the cake hadn’t even finished baking yet. At most, the creamy buttery smell was coming out of the oven. However, people were already desperate to eat the cake. What would happen when the cake was finally out of the oven?

What happened today at ITER was only a preview for the future.

At night.

An office in Beijing.

Director Lu was smoking next to a window when he looked at his watch.

The meeting would begin in around an hour.

Director Lu's head hurt when he thought about the recent events, and he pinched his eyebrows.

Even though they anticipated the actions by the US, the US executed so fast that many people, including him, were caught by surprise.

It was obvious that the Americans were coming after the STAR-2 project.

Suddenly, he heard a knock from his office door.

Director Lu sighed and put out the cigarette. He walked to his desk and sat down.

"Come in."

His secretary opened the door and walked in.

Director Lu looked at Secretary He and asked, "Have you met with Professor Lu yet?"

He Mingxuan nodded.

"We met in the afternoon."

He then immediately began to report on what happened during his conversation with Lu Zhou.

After hearing the secretary's report, Director Lu tapped his index finger on the desk and went silent for a bit.

"Is that what he said?"

He Mingxuan nodded seriously and said, “Yes… He promised me that even if China withdraws from ITER, the STAR-2 demonstration reactor project will not be significantly affected.”

Director Lu’s furrowed brows finally relaxed, and he nodded in relief.

“Okay, I understand!”

This was probably the best news he heard all day.

This should do the trick!

Chapter 528: We're Relying On You!

Chapter 528: We’re Relying On You!

The ITER Council is the highest decision-making body of the ITER program and organization. It consisted of four representatives from each seven ITER country members. These representatives were authorized by their respective foreign ministries and were nominated according to the needs of the meeting. Their roles and responsibilities were very similar to those of a company’s board of directors.

However, unlike a company, there were no “company bylaws” that could restrict the ITER Council’s decision.

The voting power of the various members wasn’t necessarily entirely determined from their country’s technological strength and contribution to a specific field. Rather, it depended more on the international relations abilities of various countries.

One had to admit that the United States was definitely strong in this area. The questions asked by the American representatives to the Chinese representatives were quite scary.

However, at this conference, the situation changed.

At this board of directors meeting, Chinese representative Luo Zhanyuan, who was appointed by the Ministry of Foreign Affairs of the People’s Republic of

China, made a clear and strong response to the request made by the US representative.

“We have already fulfilled our duty and obligation to disclose the details of our controllable fusion experiment. If just because the STAR machine uses a certain technology that we have to disclose all of the other technological details, then I must responsibly remind you that the STAR machine control scheme uses Intel’s chips. Before asking for our generosity, maybe you guys should show a little generosity of your own?”

After hearing the translation, the American representative Adam Cohen stared coldly at Luo Zhanyuan and said in a serious manner, “This is an outrageous request. Intel is not a cooperation unit of ITER, the chip technology is their private property. Also, this is totally different than what we were discussing!”

Even though Minister Cohen spoke in an aggressive tone, Luo Zhanyuan didn’t hesitate before making a comeback.

“The STAR Stellarator Research Institute and their partner companies are also not cooperative units of ITER. The SG-1 superconducting material technology and the STAR machine control scheme belongs to their respective private units. In my opinion, this is the same as Intel.”

Adam Cohen: “You guys are manipulating the situation!”

Luo Zhanyuan said impolitely, “Are you talking about yourselves?”

“…”

The meeting basically became a “battlefield” for the American and Chinese representatives. The two sides were bickering back and forth on the issue of intellectual property.

Other countries’ representatives didn’t seem to be interested enough to join in on the dispute, but it was obvious that they weren’t indifferent either.

Director-General Motojima was also sitting at the conference table. He suddenly sighed gently.

“Looks like this conference is going to end on an unhappy note.”

The Japanese representative Ishida was sitting next to him, and he turned slightly to look at the Director-General.

“Motojima, are you not interested in how Professor Lu did it?”

Last year, the Cray-XC50 supercomputer officially became in service for the Rokkasho Fusion Energy Research Centre, to provide computational support for Japan’s national controllable nuclear fusion research and to contribute to the ITER program. Although the supercomputer’s computing power was only ranked around 15 in the super-calculation rankings, the supercomputer was designed for controllable nuclear fusion research. Therefore, one couldn’t compare it directly to the other general-purpose supercomputers.

Just like how Anton was designed for computational chemistry, Cray-XC50 was equivalent to a large harvester, which was designed for plasma physics and controllable nuclear fusion.

Coincidentally, the Japanese lacked a set of effective control schemes. If China agreed to ask the STAR Stellarator Research Institute to disclose their control scheme, then they could improve their research results.

However, the probability of this happening was low.

Motojima stared at the two representatives bickering and went silent for a while. He then answered Ishida’s question, “I am curious, but I have to say, this is not an honorable way to go about this. America wants to show its strengths through the ITER project. But the possibility of China compromising is low. If Mr. Cohen continues to stand his ground, the final result might be China getting kicked out of the ITER project.”

Ishida asked, “Is this not what the United States wants?”

“Not necessarily.” Motojima shook his head and said, “At least not before China discloses their research results. It’s not in the interests of the Americans to kick China out of the ITER project.”

Zhou Chengfu, who was sitting at the conference table, could feel the representatives from the other countries staring at him. He felt a mix of emotions.

Ever since the meeting began, he could smell the gunpowder. Even before the meeting began, he could see the signs of a fight.

First, it was that internal domestic meeting. Then, it was that representative from the Air Force, who was appointed by the Ministry of Foreign Affairs. Luo Zhanyuan's resilience was beyond his expectations.

All of the signs showed that the higher-ups seemed to have given up on the ITER fantasy. It was almost foreseeable that they faced being removed from ITER, and they probably wouldn't receive their next round of ITER funding.

The country's attitude toward ITER turned sharply. As the director of China International Nuclear Fusion Energy Program Execution Center, he was caught in a dilemma.

Logically speaking, he didn't want to leave ITER.

At the start, they invested a lot of money to join ITER. If they really decided to leave now, not only would it mean that those efforts would go to waste, but it would also mean that the Chinese research institutes that were cooperating with the ITER countries would cease their cooperation.

And the most important thing was that, if China decided to leave ITER, then there would be no point for China International Nuclear Fusion Energy Program Execution Center to exist. Even though they wouldn't immediately disband the center, they would definitely be restructured.

Also, it was foreseeable that China's future research in fusion energy would be focused on the stellarator.

And his ten years of hard work…

When Zhou Chengfu thought about this, his emotions became more complicated.

Right now, he wasn't sure whether he was concerned about China's future controllable nuclear fusion field or his own future…

…

The dramatic changes at ITER wasn't a pleasant thing for Lu Zhou.

He had a lot of cooperation plans with the Max Planck Society, but now, it seemed that the Wendelstein 7-X laboratory might change from partners to potential competitors.

He had to admit that these changes gave him a mix of emotions.

However, the one positive upside was that after he finally completed the design plans for the liquid lithium neutron recovery system, there was a piece of good news from the China National Nuclear Corporation.

Chief Engineer Wang arrived at Jinling again. Not only did he bring hope for using a ferrofluid electric energy generator on the fusion reactor, but he also brought a more detailed design sketch.

Even though it was only a sketch, the entire basic structure and all of the connection port placements for the ferrofluid electric generator were on the design sketch.

Lu Zhou briefly looked at the sketch.

“There aren’t any obvious problems… Oh yeah, what is the expected energy conversion efficiency?”

Academician Wang: “The initial estimate of 50% is a piece of cake. It might be even higher. However, before the real thing is built, it’s too early to say.”

Lu Zhou was surprised. “50%? That high?”

Academician Wang smiled and said, “That’s just a conservative estimate. We’ve talked with experts from the Institute of Electrical Engineering. Like you said, ferrofluid electric energy isn’t efficient when used in thermal power, but it is quite feasible when applied to nuclear fusion power. Other than the heating plasma problem and the effect from the carbon deposit and cinder, the problems we encountered when trying to use thermal power are non-existent.”

Lu Zhou: “How long will it take to build this thing?”

Academician Wang thought for a bit and said, “Around next year, other than the connection port, the rest of the design is easy. It wouldn’t be very troublesome to make.

“The generator isn’t a big issue, it can be solved with time. When the electrical engineering experts heard you plan on using ferrofluid electric energy for the nuclear fusion reactor, they were thrilled. As long as you can build the reactor, we can definitely handle the generator.

“Speaking of which, I’m a little worried for you guys. I heard that the United States plans on kicking us out of the ITER project. It looks like they’re trying to set up a technology blockade, are you guys fine?”

When Lu Zhou heard Academician Wang’s statement, he smiled.

“You don’t have to worry about this. Talking about it won’t do anything. Whether we’re fine or not, you’ll know when the time comes.”

“Looks like you’re pretty confident.” Academician Wang looked at Lu Zhou’s confident expression and said, “Speaking of which, you’re a millennial, right? Do you know what a technology blockade means?”

Lu Zhou calmly said, “It means that the two dozen or so Chinese research institutes that are doing academic exchanges with foreign controllable fusion research institutes might be suspended from further cooperation. Hundreds of ongoing research projects might be paused or even canceled.”

In addition, it would probably affect billions of dollars worth of contracts, as well as hundreds of master’s and PhD students…

This all could happen, or rather, this would happen.

However, what did it mean?

Would compromising earn them equality and dignity?

Lu Zhou didn’t think so.

“So you know what it means.”

There was a tinge of approval in Academician Wang’s face.

There was a difference between talents. An excellent scientific researcher wouldn’t necessarily be an outstanding academic ruler. There was a difference between geniuses and leaders.

If there was any doubt in Academician Wang’s mind about Lu Zhou’s leading abilities, that doubt had now disappeared.

Academician Wang stopped smiling and looked at Lu Zhou with respect.

“We’re relying on you!”

Jinling high-tech zone.

A couple of years ago, this place was a wasteland, waiting to be used. But now, it was very well developed.

With support from the municipal government's policies, a large amount of high tech company workers resided at this place. They relied on the talent resources from the universities nearby. This place had become a standard model for economic development, taught by universities.

Even though the original intention of this area was only to retain local talents, it seemed that this goal had been overfulfilled. Also, it brought enormous economic value.

Especially in the lithium battery industry.

According to the latest industry reports, this year's modified PDMS lithium anode material and the HCS-2 lithium-sulfur battery positive electrode material occupied 32.7% and 47% of the national market share respectively. They were basically the pillars of this industry.

There were also the SG-1 superconducting magnets, recently put into production by Baosheng Group. They were sold all over the world.

For the city council leader that first designed this high-tech area plan, this was a dream come true.

Of course, the reason why they were able to achieve this level of development had little to do with government policy support.

One of the reasons was that Zhongshan New Materials, the leader of the domestic material industry, was able to successfully ride the wave of the lithium battery market. Another reason was obviously everyone's personal efforts.

Of course, the most crucial reason was probably the Jinling Institute for Advanced Study.

All of the companies in the high-tech zone were like stars that rotated around this black-hole like research institute, as if they were a galaxy system. More than 60% of the economic output here was directly or indirectly related to this

research institute's technology. As the market expanded, this proportion would continue to increase.

The industry was led by academia, while the factories were being led by laboratories.

For any other research institute in China, this was unthinkable.

Even in a developed country with a scientific research to industry conversion ratio of more than 40%, there were only a handful of research institutes that had the capabilities.

Especially after the Nobel Prize laureate returned to China, this became a holy place for countless scientific researchers.

Regardless of how the researchers inside the research institute viewed their own work, at least from an outsider's perspective, being able to conduct research alongside a Nobel Prize big name was a nutty thing in and of itself.

After all, this was a Nobel Prize winner's Nobel Prize laboratory. This meant that their experiments were on another level.

A Nobel Prize winner's research project had to be at least on a Nobel Prize level, right?

In fact, this was true.

The STAR fusion machine from Purple Mountain ignited the entire world's hope for controllable nuclear fusion technology. Not just that, but even the STAR's research partner, Jinling Institute for Advanced Study, also received a lot of attention.

In the beginning, this research institute was only able to attract researchers that didn't have their own laboratories. But now, even some semi-famous scholars were extremely interested in working at this place.

After all, it was backed by a 40 billion yuan large project. Not to mention, it was also a major national scientific research project. This was on another level compared to most domestic research institutes.

Of course, even though all of this sounded attractive, when one really entered this institute, the beauty inside wasn't as good as what an outsider might think. At least, it was no paradise…

There was no bureaucracy, no quota for the number of research theses produced… These were all major features for this research institute, and the researchers conducting scientific research here only had to focus on their own work.

On the other hand, the pressure and work intensity here were much stronger than normal research institutes. After all, if they didn't try their hardest, these people wouldn't be able to keep up with Lu Zhou's footsteps.

At least, in Hou Jinli's opinion, this place was full of opportunity.

But it was also extremely intense and competitive.

Working until midnight was a common occurrence. When they were particularly busy, they even slept in the laboratory. This was more intense than any other materials research institute in the country.

As for the Institute of Mathematics or Institute of Physics…

He hadn't worked there yet, so he couldn't give a fair evaluation.

Of course, even though Hou Jinli was busy working here, he was still quite satisfied with his life here.

Both the scientific research environment and salary were at the first-class level in China.

Of course, this was when he compared with his peers. It wouldn't be fun if he had to compare himself with those working in tech.

Since he bravely jumped into the pit of materials science, he had to be prepared to be buried.

Not to mention, scientific research required a certain amount of passion.

Even though academic and research funding were closely related, it'd be boring to only care about the money side.

This was what Hou Jinli told himself in order to encourage himself whenever he felt like he couldn't handle it any longer.

By the time he published a couple of theses and became a small boss of his own, the situation would be completely different.

However, dreams were beautiful, but the reality was cruel.

Almost a year had passed, but the research project he successfully applied for hadn't progressed at all.

Even though there were many interesting discoveries, they were far from being outstanding.

Up until now, all he did was explore a set of laboratory synthesis methods.

If he were in any other research institute in China, he would have to worry about how he would pass the end-of-year assessment.

Thankfully, Professor Lu didn't have a quota on the number of theses publications. He only had to write a monthly report on the things he did that month, and his experiment would be allowed to continue.

This way, he didn't have to worry about his research project being cut out halfway through.

"This is the data you want, figure A is a XRD diagram, figure b, c, and d are the TEM material tests. There are also the characterization phase graphs for the SEM and XRD diagrams, I did those for you as well."

Hou Jinli picked up these graphs and began to look at them carefully.

Yu Junda stood next to the experiment table with his arms crossed. He sighed.

"I told you, this thing is just some carbon residue, what's the point in researching it."

They had wasted nearly a year researching this thing, so Yu Junda wasn't in a good mood.

Honestly, he was intrigued at that time, so he decided to work on this research project with Hou Jinli, but now, he was starting to regret doing so.

“Calling it carbon residue is such an understatement…”

“Maybe you can think of something that sounds better?” Yu Junda shrugged and said, “Regardless of what it is called, I think we are wasting our time.”

When Hou Jinli heard his friend’s words, he went silent.

It wasn’t that he didn’t want to argue, it was just that he didn’t know what to say.

Nothing significant came out of this experiment.

Whether it was dispersing this material into other materials or using it alone, it was hard for him to think of the potential value of this material.

Hou Jinli sighed and put down the data on the table. He was thinking about how he would write the experimental report when he suddenly looked at the mortar and pestle on the experiment table.

The mortar and pestle were used to grind carbon nanotubes.

Normally, they would use a ball mill, but the mortars were used for handling small samples.

What attracted him wasn’t the mortar itself, but rather…

An idea suddenly popped up in Hou Jinli’s mind, and he spoke thoughtfully, “Speaking of which, we haven’t tried ceramics yet…”

Yu Junda paused for a second.

“I don’t think we did…”

It was like Yu Junda had suddenly thought of something. He had a strange expression on his face.

“Are you thinking of…”

Hou Jinli nodded.

“Let’s try it, we’ve already wasted all this time anyway.”

He had a bitter expression on his face when he spoke.

If this doesn’t work out, then it’s whatever…

Chapter 530: Don't Ruin Your Own, Ruin Others

Chapter 530: Don’t Ruin Your Own, Ruin Others

Hou Jinli had no idea how many times he had failed.

In the beginning, he was only preparing the SG-1 material in the laboratory and was interested in the expected waste generated in the experiment.

Compared to ordinary graphite materials, that piece of waste felt quite special in his hands.

These were the conclusions he made from the experiments. He discovered that the reason why this waste product felt so special was that it had a layer of porous mesh aerogel barrier on its surface.

Honestly speaking, this result disappointed him. After all, porous mesh aerogels made from graphene wasn’t a particularly new research method. One could even make the case that similar methods were used in electrode materials.

However, this was the first research project he independently applied for in his life. This was also the first research project he worked on after coming to this research institute, so he didn’t want to give up so easily.

Therefore, after he found out that the porous aerogel itself had no special characteristics, he continued to perform in-depth research on using it as a dispersing medium and looking at its dispersed phase.

This entire process was despairing.

It even made him doubt his entire life.

Fortunately, he didn’t give up.

He used the porous mesh aerogel prepared from graphene as a toughening agent. He combined it with silicon carbide ceramics, and a miracle happened!

The porous mesh aerogel wasn't a particularly superior toughening agent compared to other materials, at least when one compared it to similar toughening materials.

However, its thermal properties made him so excited that he couldn't help but shout in the laboratory.

Hou Jinli immediately finished writing the experimental report and handed it to the institute's office.

The day after this experimental report was submitted, it arrived on Lu Zhou's desk…

…

Even though many interesting inventions were created by accidents, this particular accident was more unexpected than usual.

Lu Zhou looked at the experimental report. He was intrigued.

"Interesting."

The report was divided into two parts.

The first part was about the preparation of the porous mesh aerogel.

[Using graphene oxide as the base material, prepare 1-2mg/ml of graphene oxide solution, then add the reducing agent, stir for 5-10 minutes. After that, heat it at 90-160 Celsius for 30-45 minutes, take it out and immediately put it into the freezer for four hours. After that, take it out, then continuing to reduce and thaw at a high temperature for 5 hours. Finally, wash it several times and dry it… This was the method to create the porous mesh aerogel.]

The second part of the report was the crucial part of the entire experiment.

In the experiment, Hou Jinli and his research team used atomic layer deposition to chemically bond the porous mesh aerogel, which was prepared from graphene, to a silicon carbide ceramic layer. Thus, allowing them to obtain a special graphene ceramic composite.

Looking at its microstructure, this material looked like the honeycomb-shaped graphene layer was connected to a ceramic layer in the middle. These

honeycomb-shaped graphene molecules were tightly bonded to the silicon carbide molecules.

According to the experiment results from the high-temperature test, in an oxygen-less environment, this special graphene-ceramic composite was able to withstand a temperature of 3,200 degrees!

Not only did it have excellent heat-resistant properties, but the material also had a small expansion coefficient. It also had remarkable anisotropy and thermal conductivity properties.

Which meant that the heat energy could be easily transmitted through its cross-section, and it wasn't easily transmitted through its vertical direction.

Other than this, it also had a high tensile and compressive strength, not to mention resistance to thermal stress.

Looking at these data, this material could be considered superb.

Yang Xu looked at Lu Zhou's intrigued face and asked, "Is this the material you need?"

"Hard to say." Lu Zhou put down the experimental report and leaned back in his office chair before saying, "But this report did provide me with a new idea."

Yang Xu: "Idea?"

"That's right." Lu Zhou nodded and contemplated for a bit. He said, "At first, I thought that ceramic materials are not suitable for the first wall, due to its poor heat dissipation properties. But looking at it from another point of view, the smaller the perpendicular heat transfer performance is, the better."

Yang Xu: "What makes you think that?"

"Because of the liquid lithium neutron recovery system." Lu Zhou smiled and said, "Due to the thermal conductivity of the carbon fiber composites, we have to consider adding another thermal insulation layer between the carbon fiber composite and the liquid lithium. Otherwise, the 3000-degree temperatures would vaporize the liquid lithium layer we used for neutron recovery."

The difference in temperature of the first wall and liquid lithium layer was one of the main difficulties in the reactor.

The thermal conductivity couldn't be too weak, nor could it be too strong. Looking at it from this point of view, carbon fiber fell quite behind.

In contrast, the anisotropy and thermal performance of this new material were quite promising. Weakening the thermal energy transfer of the vertical cross-section could provide a sufficient buffer time for the external cooling unit to come into effect.

As for the heat dissipation of the structural material, that could be solved by "inserting a heat transfer tube into the structure and discharge the heat transferred from the cross-section direction".

Even though Yang Xu didn't understand much about the fusion project, Lu Zhou's explanation was simple enough for Yang Xu to understand.

However, even though the thermal problem was solved, there was also another important issue…

"What about the neutron radiation? That's the most important part, right?"

Lu Zhou heard him and sighed. "You're right, that's the important part. Even though this material is suitable in all other aspects, its neutron radiation resistant property… We have to test it before we know."

Both the silicon carbide and graphene material had stable nuclei. The carbon-silicon covalent bond was far more stable than the metal bond. Also, the permeability of neutrons through these two materials against the neutron beam was also an advantage.

At least, this was how it was… theoretically.

In reality, not only would the damage caused by neutron radiation to the material cause changes in the atoms' nuclei, but it would also destroy the internal chemical bonds, as well as causing basic physical damage to the material.

All of these factors couldn't be calculated with theory alone, they had to draw conclusions from experiments.

The only trouble was that…

They couldn't test this thing.

Yang Xu had a painful smile on his face as he said euphemistically, “This experiment isn’t easy to do.”

Anti-neutron radiation performance testing was one of the most difficult materials tests in the field of materials science.

Normal anti-radiation experiments were relatively easy to do, the nuclei could be irradiated by hitting them with alpha particles.

The reason why researching the first wall material for a controllable fusion reactor was difficult was because there wasn’t any equipment in the world that could handle the radiation test.

There were 14MeV neutrons constantly hitting the sample, what kind of experiment equipment could handle this?

Normal alpha particles were nowhere close to having this much energy.

Even the nuclear fission power generator at Daya Bay had an anti-radiation grade two magnitudes below that of the fusion reactor’s!

As for the accelerator…

That would be nonsense. No one had ever heard of accelerating neutrons directly. If anyone could do it, they would be the king of the theoretical physics world.

As for indirectly accelerating using the deuterium nucleus method, it was indeed possible. However, it would be better to just obtain the energy from shooting alpha particles into the metal foil. The only advantage of the former was that the neutron beam had a more stable path.

Lu Zhou thought about all this and felt like he was trapped. His fingers gently tapped on his desk, and he began to wonder.

Should I make the STAR machine “suffer” again?

In theory, it’s possible.

But this limits the rate of experiments to once a month, is the price to pay too high?

After all, there’s only one stellarator in China.

The China National Nuclear Corporation is studying how to build one of its own. If our own equipment is ruined, then it would be over.

However, a light bulb suddenly turned on in Lu Zhou's mind, and he clapped his forehead.

F*ck sake!

I only thought about ruining my stellarator, I forgot about the tokamak!

Even though their confinement time isn't long, at least it works!

There's only one stellarator in China, but there are plenty of tokamaks…

Chapter 531: Lying Down

Chapter 531: Lying Down

"Achoo!"

Luo Zhanyuan: "What happened?"

"Nothing…"

This air conditioning is too cold, it's making me sneeze…

Zhou Chengfu blew his nose and contemplated in his heart.

Right now, he was on a return flight. He didn't know that he was being thought of by someone.

A dozen or so hours ago, he and Director Luo, who was sitting across from him, as well as several other experts from the China International Nuclear Fusion Energy Program Execution Center and other representatives appointed by the Ministry of Foreign Affairs, participated in an informal ITER meeting in France.

The outcome of the meeting wasn't positive.

However, rather than worrying about the US representative's attitude toward them, he was more worried about the situation in China.

“Director Luo.”

“Yeah?”

Zhou Chengfu was trying to test out the waters. “In your opinion, what do the higher-ups want?”

Luo Zhanyuan highly respected this academician-level expert on controllable nuclear fusion. When he heard the question, he replied. “The higher-ups basically have no hope for the ITER project anymore. Judging by the United States and European’s sincerity toward us, even if we do disclose our technology, we might still be kicked out. Before coming here, the top leaders in the department set up a meeting for us. They asked us to drag this out for as long as possible and to not disclose any technical secrets. Unless they were willing to do a technology exchange with us, the deal is off the table.”

Zhou Chengfu heard this and silently sighed in his heart.

As expected, his worst nightmares came true.

His efforts over a decade were about to be ruined. He already knew the higher-ups’ decision, and he knew that an expert like him had no say in this matter. However, he still couldn’t help but complain.

“Then we’re just going to withdraw from ITER? We spent so much just to join…”

Luo Zhanyuan shook his head and said, “What else are we going to do? If we don’t stop the damages now, the damages will just increase over time.”

Director Luo paused for a second.

“Also, even though I shouldn’t say this, but withdrawing from ITER isn’t necessarily a bad thing. At least we can take the money we give to the Europeans, and invest it into our own fusion energy projects instead.

“Also, Professor Lu promised that we could complete the demonstration reactor by 2025… If he succeeds, we don’t have to be so passive anymore, we can take the initiative.”

Lu Zhou again…

When Zhou Chengfu heard this name, his eyebrows subconsciously twitched.

What if that kid is bragging…

Even though Zhou Chengfu really wanted to say this out loud, he decided not to; it was buried in his heart.

After all, even though he didn't want to lose to Lu Zhou, he wasn't an idiot…

…

According to Murphy's law, "anything that can go wrong will go wrong".

Even though the Chinese representatives tried to drag this out for as long as possible, they still had to face reality.

The last day in August.

The first "victim" appeared.

Before the United States convinced its allies, it planned on putting a little pressure on China first.

Because the Fuyang Institute Construction Material Laboratory had too high of a profile, they often appeared in the news headlines. The institute, which had nothing to do with the STAR research institute, was wrongfully killed.

Xiao Le dragged a dusty suitcase. He stood in front of his house feeling perplexed.

Three days ago, he was a visiting scholar at the General Atomics DIII-D laboratory. He planned on returning to China at the end of the year.

However, he didn't expect that he would be sent back to China because of a document personally signed by POTUS.

Professor Li was leading the team, and he gave the team a week of holiday and told them to wait in their homes for an update. The person in charge of General Atomics said that they would escalate this matter with the Department of Energy. After all, General Atomics didn't want to lose these talented scholars, but it was most likely that nothing would come of it…

In short, they would take a short break and wait a bit before reporting to Lu Yang.

The doorbell rang and the front door opened.

When Xiao Zhiping saw his son standing at the front door, he paused for a second.

“Aren’t you coming back at the end of the year? Why are you back now?”

“What? Our son is back?” The voice of his mother, Wang Li, traveled through the living room. When she saw her son, she walked over happily. She took the suitcase from her son’s hand and said, “Come inside and rest. Jesus Christ, you came all the way back and you didn’t even call us. I’ll tell your dad to buy pork later, I’ll braise it for you.”

Xiao Le forced a smile and said, “Everything happened a bit urgently. Our communication equipment was taken away, they only gave it back to us when we got on the plane.”

After he got off the flight, he didn’t bother calling beforehand.

Xiao Zhiping paused for a second and frowned. “Taken away? What happened?”

“Maybe… it’s related to the recent trade wars, I don’t know the specific situation.” Xiao Le shook his head and sat on the sofa. He picked up a cup and took a sip of water before saying, “The day before yesterday, we were planning on going to a plasma physics seminar. The professor in charge of our exchange team suddenly told us that the seminar was canceled. After that, when we got back to the hotel, some people that claimed they were from the FBI confiscated our communication equipment and searched our rooms…”

Wang Li was astonished, and she asked, “You guys didn’t get robbed, did you?”

Xiao Le shook his head and said, “Nope… They had a local court search order, so it’s probably not fake.”

Actually, it didn’t matter if it was fake or not.

After Xiao Le got back his phone, he found out that the photos he took of the General Atomics’ company building were all deleted. However, he posted those photos in his friends’ news feed, so the loss wasn’t huge.

Wang Li: “Th-this is too scary… How about you don’t go on any academic exchanges anymore?”

Xiao Le shook his head and said, “What exchange, my visas have all been canceled!”

Because of this incident, their names were probably all blacklisted. Not only academic exchanges, but he would probably have problems just traveling for vacation.

Honestly speaking, he was muddled. He had no idea what these Americans were up to.

From his point of view, controllable nuclear fusion was still in the far future. It might take another fifty years to realize. Suddenly, the nuclear fusion field became similar to the nuclear fission field; it was considered a sensitive technology.

He maliciously speculated and suspected that this president wanted to show his power against China.

After all, it was nearly 2020, close to the elections again.

After Xiao Zhiping heard his son’s sufferings, he was outraged, and he spoke with anger, “Ah, who cares about America. Who cares! Without them, is the earth going to stop spinning? Did we not create atomic bombs and satellites without them?”

Xiao Le shook his head and said, “Okay, fine fine, you won’t understand if I explained it to you.”

Many people didn’t realize, and obviously, the media wouldn’t report on this, but the EAST device on the Science Island wasn’t designed by a Chinese research institute. They actually heavily referenced the DIII-D tokamak device from General Atomics.

After all, there was a difference between scientific research and agriculture. It wasn’t like if someone gave you the seeds, you could grow the plants yourself.

If it were a fully developed technology, then this problem wouldn’t exist. But the large scale nuclear fusion technology research was far from being

developed. The follow-up research and what to plan on doing next was far more crucial than the existing technology.

But now, their cooperation with General Atomics had been suspended.

Of course, they could still use their EAST device, but as for what they should research next…

They could only rely on themselves.

Of course, Xiao Le wasn't totally hopeless.

Learning was part of scientific research. It was important to know one's weaknesses, but one shouldn't be overly humble either. In fact, they had made significant innovations on the EAST machine. For example, the superconducting D-section technology was developed by the Fuyang Institute Construction Material Laboratory.

It was just that, compared to being in a win-win situation, they had to fight alone from now on.

This made him feel somewhat unsafe about China's future controllable fusion field…

Xiao Zhiping: "I don't understand those stuff, but you guys are the Fuyang Institute Construction Material Laboratory, surely you are the leaders in the domestic controllable fusion field? Do your best, make your father proud. Make those Americans beg for us to go back!"

Xiao Le heard his father's encouraging words and shook his head as he continued to eat.

Sounds easy, but it's not easy to do.

Not to mention, we're not the leaders in fusion energy anymore.

The ITER is planning on going toward the stellarator direction, and the United States and Europeans don't want to play with us anymore. I have no idea if the CFTER is going to survive.

I think China is planning on pursuing the stellarator as well.

I think it's called STAR-2?

After all, the light coming from the Purple Mountain blinded the entire world…