Scholar 421

Chapter 421: Smoothness Exists!

Lu Zhou originally thought he was used to this type of feeling.

He didn't expect to feel his heart beating out of his chest.

This was different than the Princeton Institute for Advanced Study report; he wasn't only facing the number theory world but the entire world of mathematics…

Lu Zhou stood on stage and took a deep breath as he tried to calm his heart down.

He looked at his watch.

The second hand was getting closer and closer; he put a serious look on his face and gave himself some courage.

Box..

"It's about to begin!"

At exactly 9 a.m…

There was no need for anyone to maintain order; the noisy chaotic venue instantly became quiet.

A title appeared on the silver projector screen.

[Proof for the existence of a three-dimensional incompressible smooth Navier-Stokes equation solution.]

Lu Zhou looked at the crowd and began his report.

“Why doesn’t a car on the highway spontaneously disintegrate, why doesn’t a lake suddenly combust?

“We have been asking these questions for a long time, but the truth that we crave for is covered in disguise.

“In the 19th century, we have already invented the equations that generalize the laws of fluid emotion and made these equations succinct. However, to this day, we still don’t have a deep understanding of the mathematics and physics that are behind these equations.

“Mathematics is a rigorous discipline that involves the proposition of numbers, and there is no such thing as ‘maybe’ in mathematics.

“Back to my original question. Why doesn’t a car on the freeway disintegrate? Why doesn’t a lake spontaneously combust? Is there a mysterious singularity on an infinite time scale that causes our equation to diverge?

“It’s time to answer these questions.”

After his brief opening remarks, Lu Zhou turned the PowerPoint to the next slide.

This was the main section of the report.

Lu Zhou spent three seconds thinking of a summary. He then faced the audience and spent a minute giving a brief overview of his proof.

The crowd was silent.

Everyone stared at the pictures and calculations on the projector screen. Everyone was listening intently; they didn't want to miss a single detail.

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

[…]

"When we introduce a Schwarz-free divergence vector field μ0 to the equation and set the time interval I ⊂ [0, + ∞), then we can define a generalized solution H10 of the Navier-Stokes equation as an integral equation μ (Continuous mapping of t), ie μ→H10df(R3)…"

The PowerPoint presentation was on the projector screen.

Lu Zhou had a laser pointer in his hand, and he used it to point at the screen while explaining.

This part was nothing special.

Any Navier–Stokes equation research theses would contain similar things.

However, the crucial part was his bilinear operator B' and the L Manifold.

The next part was the key to the whole proof process!

Lu Zhou would introduce the concept of differential manifolds into partial differential equations.

This was the core idea of using topology methods to research partial differential equations!

…

Xu Chenyang was in the crowd, and he lightly tapped his notebook with the pen in his hand.

After a while, he whispered to Zhang Wei, “Do you understand?”

Zhang Wei shook his head and said, “I don’t know much more about partial differential equations any more than you. If you’re having a hard time, then so am I.”

Zhang Wei’s area of research was similar to his mentor Zhang Shouwu’s; he mainly focused on representation theory, Langlands program, and Dirichlet distribution.

He wasn’t knowledgeable at partial differential equations; he only briefly learned about the Navier–Stokes equation out of interest.

After all, not everyone was a genius like Tao Zhexuan. Not everyone could prove the weak Goldbach’s conjecture, study the Navier–Stokes equation’s abstract proof, and read all of Shinichi Mochizuki’s theses…

There were people in mathematics that knew everything.

But they were extremely rare…

Xu Chenyang looked at the calculations on stage and said, “I can’t believe it…”

Zhang Wei: “Can’t believe what?”

Xu Chenyang: “Number theory, abstract algebra, functions analysis, topology, differential geometry, partial differential equation… Is there anything he’s not good at?”

Zhang Wei said in an uncertain tone, “Maybe… algebraic geometry?”

However, he suddenly remembered Lu Zhou’s mentor was Deligne. Deligne’s mentor was Grothendieck, the founding father of algebraic geometry as well as the “pope of mathematics”.

The core theory of modern algebraic geometry was basically derived from the few books that Grothendieck wrote.

Zhang Wei was certain that Lu Zhou was well-versed in algebraic geometry as well.

He was certain Lu Zhou would eventually come up with new algebraic geometry research results…

…

The report continued.

Lu Zhou began to speak faster and faster; his ideas were becoming clearer and smoother.

The introduction of the L Manifold played a crucial role in the Navier-Stokes equation.

It was like a hammer that was breaking the maze wall.

This confusing situation became clearer and clearer.

They finally arrived at the climax of the report.

Fefferman sat in the corner of the venue with a smile on his face.

Tao Zhexuan was sitting on the other side of the venue, and he muttered to himself, “I see.”

His eyes sparkled with excitement.

Vera was sitting in the back row of the venue, and she could feel the enthusiasm in the atmosphere. Her heart rate began to increase, and she felt proud of her supervisor…

Faltings was also sitting in the back row; his rigid face finally turned into a smirk…

Deligne noticed his old friend smirking and asked, “What do you think?”

Faltings put on a poker face as he replied, “It’s okay.”

Deligne smiled and said, “You’re really saying that?”

Faltings ignored his old friend’s banter and looked at his watch. He then stood up.

Deligne asked, “It’s almost over, aren’t you going to stay till the end?”

“There’s no need.”

Faltings had understood everything already.

As for the boring questions, others could deal with it.

Faltings walked through the crowd and exited the hall.

The report ended the moment Professor Faltings left the lecture hall.

The last line of calculations was on the project screen; it was almost like Lu Zhou didn’t have to do any explanation.

Because the audience could see the answer for themselves.

“… Combining all of the above inferences, the result is obvious. There exists a smooth solution to the three-dimensional incompressible Navier Stokes equation!”

His voice was crisp and confident.

It wasn’t sonorous, but it was magically charming.

And the source of that magic was knowledge.

The second Lu Zhou finished speaking, the crowd stood up from their seats.

Then, a seemingly endless thunderous applause echoed throughout the lecture hall.

Chapter 422: Not Just One Person’s Miracle

“F*ck me, this is nuts!”

Xu Chenyang’s hands were red from clapping. He usually never swore but he couldn’t help himself.

Although he wasn’t the person standing on stage, nor had he even met Lu Zhou before, he still couldn’t help but be excited. He was genuinely cheering from the bottom of his heart.

The Millennium Prize Problem that troubled the mathematics community was solved by a Chinese scholar.

This wasn’t just one person’s miracle.

It was a miracle for the entire country!

Box..

Xu Chenyang was certain that after today, even people who knew nothing about mathematics would read Lu Zhou's name on television and newspapers.

This honor was even greater than the Fields Medal.

Rather, the Fields Medal would be honored to be awarded to Lu Zhou.

"…"

Zhang Wei sat next to Xu Chenyang; he stared at the man on stage and didn't say anything.

He was completely shocked.

When Zhang Wei took off his glasses to wipe his foggy lens, he saw his own reflection in his glasses.

Originally, he was invited to do a 45-minute report. He didn't expect to witness a historic moment.

CCTV had never broadcasted the Fields Medal award ceremony before. At most, they would include a snippet of the International Congress of Mathematicians.

However, tomorrow's CCTV broadcast might be an exception.

But Lu Zhou didn't really care about these things…

On stage.

The thunderous applause echoed in Lu Zhou's ears. His heart was trying to beat its way out of his chest. When he looked at the crowd, he felt somewhat dissociated.

After ten seconds, he finally came back to life.

The applause gradually ended.

The audience sat back down.

Although his report had ended, the presentation didn't.

Next up was the most crucial stage of the report.

Even though his report was stellar, even though he had successfully convinced many people, there were still doubts among people.

He would answer the questions one by one during the Q&A session.

His ability to successfully answer the questions would determine if his thesis would be accepted and recognized by the entire academic community…

…

The Q&A session was longer than Lu Zhou had thought.

Tao Zhexuan was the first to ask a question; it was about the L Manifold.

Then Fefferman, Qiu Chengtong…

Almost all of the big names in the partial differential equation field asked a question.

Lu Zhou provided detailed answers to all of these questions.

Time flew by quickly during the Q&A session.

By noon, the questions were still coming.

Everyone was feeling hungry, and so, the organizers had to announce intermission. They consulted Lu Zhou for advice and decided to schedule a second Q&A session in the afternoon.

Lu Zhou finally had some time to rest. He then sighed in relief as he walked off stage.

However, before he could go to the toilet, he was surrounded by people who were waiting outside the lecture hall.

Surrounding him were journalists, scholars, as well as his admirers. Not everyone had the opportunity to witness this historic moment, and many people were waiting outside the lecture hall.

“Professor Lu, hello, I am a reporter for Columbia TV…”

“… Please let Daily Mail interview you!”

“How is the result? Is there a general smooth solution to the three-dimensional Navier–Stokes equation? Is it smooth?”

“God Lu, can I shake your hand?”

“Let me take a photo! Just one photo, I want to post it on Twitter! Oh sh*t, don’t step on my foot!”

“Can I have your contact information, I have some mathematics questions I want to ask you…”

Lu Zhou was shocked by the enthusiasm of these people. He didn't expect the crowd to be outside the lecture hall.

But after all, this was the quadrennial International Congress of Mathematicians, and so, this was understandable.

In addition to the invited participants, there were people that paid out of their own pocket to attend the conference. The International Mathematical Union didn't exclude any math enthusiasts from participating in this nine-day long event.

However, when Lu Zhou looked at the energetic crowd, he started to have a headache.

He still had a Q&A session in the afternoon, and he was tired and hungry. He just wanted to find a place to eat and take a nap. He didn't have the time nor energy to deal with these people's demands.

Fortunately, the conference organizers anticipated this, and Lu Zhou managed to escape the crowd with help from staff members…

…

At noon, the organizer of the conference, the International Mathematical Union, provided a free simple lunch for everyone.

The lunch was an authentic black bean on rice with mate tea and a ball of chocolate as dessert. Although it wasn't anything fancy, it was quite filling.

Lu Zhou wandered around the hotel restaurant holding a plate of food. When he found a quiet corner, he then sat down.

The second he sat down, his three students came over.

“Professor, I just saw your report, you’re so cool!”

Hardy sat across from Lu Zhou as he waved his fist excitedly. It was almost like he had just witnessed a football match.

Qin Yue, who sat next to him, nodded excitedly as well; he looked unusually energized.

However, he didn’t like to talk as much as Hardy as he wasn’t good at expressing his feelings. He could only come up with one word.

“Epic!”

Lu Zhou smiled and responded.

“Jealous?”

Hardy: “Of course!”

Qin Yue and Vera didn’t say anything, but they all nodded.

A one-hour report was already nutty.

A special report session that was organized just for him? That was beyond nutty!

Lu Zhou looked at his students and smiled. He then said in an encouraging tone, “If you’re jealous, then go work hard! There will be a day where you will stand on stage, sharing your knowledge with the world. The future is yours.”

Hardy: “… Professor.”

Lu Zhou: “What?”

Hardy scratched his head and said, “Nothing… I just wanted to say that I’m 25 years old, one year older than you. If you’re old, then we’re going to be old as well…”

Lu Zhou: “…”

Shut up!

…

Lu Zhou finished his lunch and returned his empty plate. He then quickly left the hotel restaurant.

There was still half an hour until the second Q&A session. He planned to go back to his hotel room to take a nap. He wanted to recharge before the afternoon session.

Suddenly, Vera, who didn’t say a word, caught up to Lu Zhou’s footsteps and stopped him at the corridor outside the restaurant.

“… Professor.”

When Lu Zhou heard her voice, he stopped walking. He then turned around and looked at the little girl.

“What?”

Vera was embarrassed to express her feelings. However, the two other students already sent their congratulations. Therefore, Vera made up her mind and blushed while congratulating Lu Zhou.

“You looked… handsome on stage.”

Lu Zhou was embarrassed.

With a smile, he said, “Of course.”

Chapter 424: International Congress of Mathematicians!

Morning, 1st of August, 2018.

The crowd gathered inside the conference venue.

This was the largest, most important mathematics conference. The International Congress of Mathematicians was known as the Olympics of mathematics. Except for when the two world wars were happening, it had been held every four years since 1897.

This was an international conference that provided a place for mathematicians to exchange ideas, discuss academic issues, meet old friends, and make new friends. Every conference played a pivotal role in the history of mathematics.

This year’s conference was particularly special.

Not just because this was the first International Congress of Mathematicians held in the southern hemisphere, but it was also because of the Millennium Prize Problem. This conference had received worldwide attention.

Box..

Lu Zhou was walking outside the venue while wearing a suit. He bumped into Professor Fefferman, and the two then entered the venue together.

Lu Zhou stood in an uncrowded area as he looked at his watch.

It was 8 a.m, an hour until the opening ceremony.

Fefferman: “I heard the CCTV in your country applied for a live broadcast permit for the conference.”

Lu Zhou looked at the corner of the venue where he saw a CCTV logo on one of the cameras.

The guy holding the camera noticed Lu Zhou as well, and he pointed the camera toward him.

Lu Zhou looked away and asked, “Does this rarely happen?”

“Rarely. At least, this is the first time I’ve ever seen it happening,” Professor Fefferman said. He then smiled and patted Lu Zhou’s shoulder as he asked, “How do you feel? Nervous?”

Lu Zhou thought for a moment before he replied, “… I’m feeling ok.”

His report was already over. Since today was just the opening ceremony, it wasn’t like he had to do anything.

As for the CCTV cameras…

It wasn’t as if this was his first time on national TV.

Professor Fefferman looked at Lu Zhou in surprise and said, “Unbelievable… That’s a TV channel with 1.4 billion viewers, are you not nervous?”

Lu Zhou said, “It’s not that big of a deal…”

“… Actually, there’s one more thing that might be important to you, but I’m not sure if I want to tell you.” Fefferman looked a little hesitant; he wasn’t sure if he should tell him.

Lu Zhou asked, “What?”

Fefferman looked around. Once he confirmed that no one was staring at them, he coughed and said in a hushed tone, “At a party yesterday, I was talking about this year’s Fields Medal with an old friend, and he told me the list of winners…”

Lu Zhou was shocked by this news.

After a while, he said, “… This isn’t appropriate, right?”

Professor Fefferman said seriously, “It isn’t, but I hope you can keep it a secret.”

Lu Zhou looked around.

Although he knew he shouldn’t ask, he couldn’t control his curiosity.

“… Can I ask who is on the list?”

Professor Fefferman asked, “You really want to know?”

Lu Zhou nodded and said, “Yes.”

Professor Fefferman lowered his voice and said, “Unfortunately, your name is not on there… However, we all think you deserve this year’s Fields Medal award.”

Lu Zhou: ? ? ?

The f*ck?

No way?

This is still not enough for a Fields Medal?!

Lu Zhou was shocked.

He suddenly heard someone saying something.

“Don’t listen to his bullsh*t. No one knows the winner’s list prior to the announcement. Not even Fefferman,” Professor Deligne said with a blank expression. He then looked at Professor Fefferman and asked mercilessly, “Tell me, who is your friend?”

Fefferman coughed and tried to look away as he said, “Oh, my dear Deligne… I’m just joking, don’t take it so seriously! Life is a lot less fun when you take everything seriously.”

Lu Zhou was speechless. “… You nearly fooled me.”

Fefferman laughed and patted Lu Zhou’s shoulder as he said, “Don’t be so serious. See, don’t you feel relaxed now?”

Lu Zhou said, “I was relaxed before you made this joke.”

Professor Fefferman sighed and said, “Okay, my apologies…”

…

At exactly 9 a.m…

The scholars were seated inside the venue, and the 28th International Congress of Mathematicians officially began.

Professor Viana, the head of the conference committee, and Professor Viana, the director of the International Mathematical Union, gave an opening speech on stage. She thanked the local organizers of the conference and the people attending the conference before she announced the official opening of the mathematics conference.

After the opening was the prize-giving session.

This was the climax of the conference.

Carl Friedrich Gauss Prize was the first prize to be announced. This award was given to achievements in the field of applied mathematics.

David Donoho from Stanford University received this year's Carl Friedrich Gauss Prize. This was due to his contribution to mathematical statistics and computing analysis in the field of signal processing.

Next was the Shiing-Shen Chern Award. This was a type of lifetime achievement award that wasn't specific to any field. This year's Shiing-Shen Chern Award winner was given to Masaki Kashiwara for his 50-year-old contribution to algebra analysis and representation theory.

Next was the Leelavati Award, and the winner was a Turkish mathematician named Ali Nesin…

Finally, it was the main part of the award ceremony and the highlight of the entire International Congress of Mathematicians—the announcement of the Fields Medal winners.

Most mathematical achievements were done by mathematicians younger than 40 years old. The Fields Medal was the highest honor that a young mathematician could receive. It was known as the Nobel Prize of mathematics.

Although a medal wouldn't determine the greatness of a mathematician, the scholar that won this medal would earn the respect and recognition of the entire academic community.

Moments before the winner list was announced…

People held their breaths and watched the stage with great enthusiasm.

Especially those that had hopes of winning the Fields Medal.

Zhang Wei sat in the crowd nervously; he began to squeeze his fists.

Molina sat next to Sophie as she nervously rubbed her knees with her fingers.

James Maynard from the UK was also here, and he sat in the corner of the venue with his arms crossed. This young number theory expert was also a Fields Medal candidate even though he did once lose to someone on the twin prime conjecture…

Professor Mori could feel the enthusiasm of the crowd.

He gave a friendly smile before he cleared his throat and spoke in a steady tone.

“He has a high understanding of applied mathematical ideas coupled with extraordinary ambitious and ever-lasting curiosity.

“… From the Zhou-Lu theorem to the twin prime number theorem, from the Polignac-Lu theorem to the Goldbach-Lu theorem, he has added new and novel research to the great ancient discipline of additive number theory.

“Not just number theory, but functional analysis, group theory, topology, differential geometry, partial differential equations… His work spans multiple disciplines, his contribution cannot be described in just a few words.

“I believe that his results didn’t just come from his talent, but it also came from the countless blood, sweat, and tears.”

Director Mori then declared in a solemn tone.

“The first winner is… Lu Zhou!”

Chapter 425: People’s Favorite

The venue exploded the moment the winner was announced.

A 24-year-old Fields Medal winner!

The thunderous applause was like nothing else.

The conference venue wasn’t the only place that exploded.

The second Director Mori read the name “Lu Zhou”, the comments section of the CCTV broadcast exploded.

[Amazing!]

Box..

[God Lu is nutty!]

[Congratulations!]

[The third Chinese Fields Medal winner! The first Chinese citizen to win the Fields Medal!]

[Powerful youth, powerful country! Thank you, Professor Lu! (flag) (flag) (flag)]

[I'm from Jin Ling University as well, I guess I went to a fake university, haha.]

[The difference between some people is bigger than the difference between people and pigs.]

[Genius student, please give me some luck, don't let me fail any subjects this semester…]

Although the total amount of theses output in China had continued to grow, the Chinese mathematics community was never at the cutting-edge.

Maybe a Fields Medal didn't represent anything or mean anything.

But this medal gave countless people hope and confidence in the new generation of Chinese scholars…

CCTV's live broadcast wasn't the only place that exploded…

Yesterday, the Shuimu University forums were filled with posts on the Navier–Stokes equation, and today, it was conquered by the Fields Medal.

At least half of the new posts on the forum were about the Fields Medal. Most of the posts weren't talking about the Fields Medal itself, but rather, the Fields Medal winner…

[Amazing, a 24-year-old Fields Medal winner! I remember the 230IQ Tao Zhexuan won it when he was 31, right?]

[The youngest Fields Medal winner was Jean-Pierre Serre, and he was 27 years old when he won it. Lu Zhou bet the record by three years…]

[This is scary… When did Jin Ling University's mathematics department become this strong?]

[God knows, I only know they're strong at physics. They don't even have a mathematics academician!]

[The International Mathematical Union is taking a big risk here! Many 39-year-olds are waiting for the prize. Giving the Fields Medal to a 24-year-old, isn't that a bit impulsive?]

[Why not? He's solved both the Goldbach's conjecture and the Millennium Prize Problem, Navier–Stokes equation. You really think he's honored to have the Fields Medal? And not the other way around?]

…

The applause inside the venue gradually subsided.

Lu Zhou didn't know what was happening online when the International Mathematical Union announced his name.

He wasn't sure how excited the people were.

He walked on stage while being watched by the crowd and cameras. He then received the Fields Medal medal from Director Mori.

This old professor shook hands with Lu Zhou and congratulated him on behalf of the International Mathematical Union.

"Congratulations, scholar from China."

Lu Zhou smiled and nodded. "Thank you."

The awards ceremony continued.

To no one's surprise, the second winner was Peter Schultz from Germany.

Schultz's PhD thesis created a new field of "complete geometry". He had, on average, received one award for every two theses he had ever written. His outstanding contributions to the arithmetic geometry field was recognized by the entire mathematics community.

He didn't win the Fields Medal last time because everyone didn't understand his "p-class perfect space theory (PS theory)". However, after he made a series of breakthroughs in the Langlands program using his PS theory, no one had any more doubts about his theoretical tool.

The third and fourth winners were a bit inferior to the first two winners, but they were undoubtedly still top scholars of mathematics.

One of them was Caucher Birkar, an Iranian scholar from the University of Cambridge, and the other was Akshay Venkatesh, an Australian scholar from Stanford.

The former was a legendary Kurdish refugee while the latter was an Australian who had won both the International Physics Olympiad and the International Mathematical Olympiad… when he was only 12 years old.

After these four scholars' names were announced, a round of thunderous applause was heard again in the venue.

Sophie Morel looked at the four people on stage, and she looked a little depressed. She bit her lip and didn't say anything.

Molina, who was sitting next to her, sighed and tried to comfort her supervisor. "… You still have a chance."

Zhang Wei was on the other side of the hall. He stared at the stage, and after a while, he suddenly sighed.

Xu Chenyang tried to comfort his old friend. "This is unfortunate…"

Zhang Wei shook his head and said, "It's not that bad."

This was his last chance. By the time the next mathematics conference came around, he would have passed the age limit of forty.

Although it was a pity that he could never win the Fields Medal, he couldn't help but feel a little comfort in his heart.

Because a Chinese scholar finally won the Fields Medal.

However, it was unfortunate that he wasn't the one to bring this honor to his country…

Zhang Wei looked at the four Fields Medal winners on stage and suddenly said, "What were you doing when you were 24 years old?"

Xu Chenyang replied, "I was studying my PhD at Princeton, what else?"

"I was at Columbia University that year…" Zhang Wei suddenly shook his head and said, "We lose fair and square."

…

After the award ceremony, the four winners sat together.

Peter Schultz was sitting next to Lu Zhou. As he stared into the camera, he poked Lu Zhou's arm.

"Ah, we meet again."

Lu Zhou smiled and said, "Yeah, long time no see."

These two first met at the 2015 American Mathematics Conference. Coincidentally, they both won an award at that conference as well.

However, one won the Cole Number Theory Prize while the other won the Cole Algebra Prize.

Ever since then, the two had been communicating through email.

The last time Lu Zhou went to Germany, he originally planned to visit Schultz at the University of Bonn. Unfortunately, he was caught up with work and didn't get to go.

Schultz smiled and said, "Congratulations, youngest Fields Medal winner. You beat Jean-Pierre's record by three years."

Lu Zhou smiled and said, "Thank you, congratulations to you as well!"

When he was 22 years old, Schultz had the chance to break this record when he created his "perfect space" theory as the following year happened to be the International Congress of Mathematicians.

However, his "perfect space" theory didn't receive recognition from the algebraic geometry community. It only helped him get his PhD.

Schultz said, "You've already defeated the Navier–Stokes equation, so what's next? What do you plan on researching?"

Lu Zhou gave a simple answer. "The application of the L Manifold on plasma physics."

"Still partial differential equations?" Schultz sighed and said, "Do you really not want to dabble in algebraic geometry?"

Algebraic geometry was one of the main fields of pure mathematics; some would say it is the most mainstream mathematics branch. However, many people were disappointed that Professor Lu wasn't interested in algebraic geometry.

Lu Zhou smiled and said, “There are already so many geniuses in that field, there’s no need for me to join in.”

Schultz smiled and said, “Have you heard this joke about you before?”

Lu Zhou said, “What joke?”

Schultz said jokingly, “If you encounter a research problem you cannot solve, one of the methods to solve it is to make Professor Lu be interested in it.”

Chapter 427: Nutty Supervisor, Nutty Students

Lu Zhou looked at the person who spoke, and his eyes lit up the instant he recognized who it was.

Academician Wang Shicheng, chairman of the China Mathematics Society!

He met Academician Wang at the 2015 Chinese Mathematicians Conference.

Lu Zhou remembered that it was at Beijing Normal University. He was still doing his master’s degree when he attended the conference with Academician Lu. He also won a Shiing-Shen Chern Mathematics Award at the conference.

Unlike the international Shiing-Shen Chern Mathematics Award, the domestic Shiing-Shen Chern Mathematics Award wasn’t a lifetime achievement award; it was similar to the Fields Medal which focused on young scholars. However, the age limit was different; it was up to 50- year-old scholars.

“Long time no see!” Lu Zhou shook Academician Wang Shicheng’s hand and looked at the three people standing next to him. He then asked, “This is?”

Box..

Academician Wang smiled and introduced the person closest to him. “This is the secretary-general of the China Mathematics Society, Cheng Dayue.”

Lu Zhou smiled and said, “Professor Cheng, nice to meet you!”

Cheng Dayue smiled. “Who said I was a professor? Professor Zhang and Professor Xu are professors, just call me Secretary Cheng.”

Lu Zhou’s eyes lit up. When he heard the other two professors’ names, he immediately knew who they were.

“These two are Zhang Wei and Xu Chenyang?”

Before Zhang Wei could speak, Academician Wang Shicheng said, “I was about to introduce them to you, I didn’t expect you to guess it right.”

Lu Zhou smiled and said, “What a coincidence, I didn’t expect to meet these two great mathematicians. What an honor!”

These two together with God Yun were legendary at Jin Ling University. Lu Zhou heard their names on Jin Ling University campus before, but unfortunately, he had never met them before. He didn’t expect to get the opportunity today.

“No, not quite! God Wei is real, I’m not quite a god yet. Rather, I should say, nice to meet you God Lu!” Xu Chenyang said while shaking hands with Lu Zhou.

Zhang Wei was a coughed and said, “… Don’t call him that, it’s embarrassing.”

Academician Wang Shicheng smiled at these young scholars and said, “Professor Lu, are you available later?”

Lu Zhou said, “Is there anything?”

Academician Wang Shicheng smiled and said, “Nothing, but if you weren’t busy, I thought we could grab some food or something. I know a good restaurant nearby, and it’s much better than the hotel food.”

The “Brazilian-style” lunch provided by the hotel was pretty average; Lu Zhou didn’t plan on eating there anyway. Therefore, he smiled and nodded.

“Sure thing, let’s go!”

…

On the other side of the planet, the Institute of Mathematics of the Chinese Academy of Sciences.

Xiang Huanan was sitting in the corner of the office, watching the CCTV report on TV. He sighed and spoke with emotion.

“Before this, I thought that kid was talented, but I didn’t expect him to be this insane! He even won the Fields Medal.”

The Fields Medal was the highest honor for mathematicians under the age of 40. No one had ever won the Fields Medal at the tender age of 24.

The Shiing-Shen Chern Mathematics Award, Wolf Prize, etc., were all lifetime achievement awards; they weren’t given to scholars under the age of 40.

After all, to reward a young mathematician for his “lifetime” of achievements almost seemed like a curse…

Academician Wang Yuping sat on the office sofa. He was also watching the TV, and he was sincerely happy for Lu Zhou.

After a while, he suddenly thought of a few students from Yan University. With a sigh, he said, “Unfortunate.”

Xiang Huanan looked at his old friend and asked, “What’s so unfortunate?”

Wang Yuping shook his head; he almost looked depressed.

“The scholars born in the ’80s and graduated in the year 2000 are the most outstanding. Zhang Wei and Yun Zhihui are classic examples. Then there’s also Xu Chenyang, who returned to China… We thought these young talents could win the Fields Medal; I didn’t expect all of them to be defeated.”

Especially Zhang Wei who studied the Kudala Conjecture for his PhD under his supervisor, Zhang Shouwu. He discovered the answer within three months, and when he only took two years to receive his PhD, he shocked the Chinese mathematics community. When he won the Ramanujan gold award, it further boosted his reputation among the academic community.

Professor Wang Yuping was a professor at Yan University; he had heard about the rumors circulating around Yan University campus.

Many young mathematics students greatly worshipped Zhang Wei; they called him “God Wei”.

It was obvious that both the older and younger scholars highly respected Zhang Wei.

However, no one expected Zhang Wei to lose out on the Fields Medal.

Xiang Huanan looked at his sad old friend and smiled.

“It’s not a big deal. From what I can tell, you guys are giving him pressure, disturbing his mental. You’re torturing him!”

“Old Xiang, I’m going to have to disagree with you,” Wang Yuping said as he wasn’t happy to hear this. “Yan University is one of the top mathematics institutions in the country, so what’s wrong with having expectations? How is it torture?”

“You’re a Yan University professor, do you not know?” Xiang Huanan smiled and said, “Who cares if he doesn’t win it? Is the sky going to collapse? Is winning the Fields Medal the goal of mathematics research?”

Wang Yuping shook his head and said, “I know, researching isn’t for awards. I’m just sad that he lost.”

Xiang Huanan looked at his depressed friend and said, “There’s nothing to be sad about. This might not be a bad thing. At least he can let go of his baggage, and focus on mathematics. He might achieve greater success in the future.”

“Don’t give me that sh*t,” Professor Wang Yuping said. He looked at the TV as he continued, “But then again, this Professor Lu guy really is brilliant. I heard his Ukrainian student will do the 45-minute number theory report.”

“You’re talking about the Collatz conjecture, right? I’ve read that thesis; it’s well written.” Academician Xiang said before he picked up his vacuum flask and took a sip of tea. He said, “He has a very good understanding of applied mathematics, so it’s not surprising that his students are geniuses as well. However, I don’t know if the Ukrainian, Brazilian, or Qin Yue is stronger. But I am sure of one thing. In ten years, one of these three will win the Fields Medal.”

Wang Yuping said, “The Qin Yue student has a chance as well?”

Xiang Huanan was surprised, and he asked, “What? Do you want him to study at Yan University?”

Professor Wang Yuping smiled and said, “I can’t convince Professor Lu to come, but surely I can convince his students.”

Xiang Huanan shook his head as he said, “You guys are too late. From what I know, the Shiing-Shen Chern Mathematics Research Institute already sent him the Thousand People Initiative.”

Wang Yuping was shocked by the news. He asked, “How are they so fast?”

“They’re not fast, you guys are too slow!” Xiang Huanan put down his vacuum flask and said, “Nutty professor, nutty students.”

Chapter 429: Collatz Conjecture Report

Although Lu Zhou was wasted in the afternoon, but due to his powerful metabolic function, he was able to attend the evening party.

He was one of the main attendees of this conference; if he didn’t attend, then the party wouldn’t be interesting…

The banquet went from 6 pm until 8 pm. Professor Fefferman didn’t have enough fun; therefore, he came up with the idea to use the Brazilian chocolate balls the Princeton professors got at the conference as chips for playing contract bridge.

This sounded like an interesting idea. Therefore, Lu Zhou joined in on the fun. In the beginning, he lost some of his chips because he wasn’t familiar with the rules, but after a while, he began to dominate the playing table.

Mathematicians gambling with cards was a very interesting thing.

Lu Zhou heard Fefferman said that everyone on the table except Lu Zhou was part of the contract bridge club at Princeton Institute for Advanced Study.

Box..

Prior to this, Lu Zhou, who had worked at the Institute for Advanced Study for years, never knew about this interesting club.

Professor Fefferman shuffled the cards and said, “If you’re interested in playing contract bridge, you can join our club. Unless there’s a special occasion, we play every day from 2 pm until 3 pm at the activity room of the Institute for Advanced Study. You’re welcome to join us if you like.”

Lu Zhou said, “But I’m already a consultant for the drone club at Princeton.”

“That’s fine, you can join as many clubs as you like,” Professor Fefferman said with a smile. Fefferman was a well-liked person on Princeton campus, and he said, “If I recall correctly, I’m an honorary member of more than 20 clubs.”

Lu Zhou suddenly felt like he was missing out…

They played bridge until midnight. At the end of the day, Lu Zhou had his pockets full of chocolate balls. He suddenly remembered that there was a 45-minute report tomorrow that he had to attend; therefore, he bade farewell.

Lu Zhou spent the night sleeping in his hotel room.

The next morning, Lu Zhou woke up with dark circles around his eyes. He took a shower and yawned as he walked out of his hotel room.

He took the elevator downstairs and walked into the restaurant. When he happened to see Molina, Lu Zhou immediately greeted her.

“Morning.”

“Morning.” Molina noticed Lu Zhou’s dark circles, and she teased him by saying, “Stayed up late?”

Lu Zhou yawned and said, “Nope, just a bit tired…”

Vera, who just finished her breakfast, walked out of the restaurant and bumped into Lu Zhou.

When the little girl saw Lu Zhou, she greeted him politely.

“Morning, Professor Lu.”

“Morning.” Lu Zhou smiled and encouraged her, “You got this!”

“Yes!” Vera nodded energetically. In the end, she couldn’t help but yawn as well.

Although she went to bed early last night, the thought of her reporting at the International Congress of Mathematicians caused her to stay wide awake.

She rolled around in bed and finally fell asleep around 3 am.

Her entire body felt dizzy; it was almost like she could fall asleep while standing.

Molina looked at this scene in front of her. She then looked weirdly at Lu Zhou.

“… Be honest, what did you do last night?”

When Lu Zhou heard this weird question, he asked, “What do you mean?”

Molina was about to say something, but she suddenly shook her head and said, “… Never mind, I didn’t see anything, I didn’t ask anything.”

Lu Zhou: “…?”

Molina looked like she just made a choice between ethics and her friendship with Lu Zhou. Lu Zhou felt like she had misunderstood something…

…

Vera's report was at 10 am; she was part of the number theory division.

There was still two hours until Vera's report, and Lu Zhou didn't want to waste any time. Therefore, he began wandering around the conference.

Without knowing it, he arrived at the algebraic geometry division.

When he walked into the lecture hall, the person doing a one-hour report happened to be his acquaintance, Professor Schultz.

Lu Zhou was interested in the report topic written on the whiteboard. He sat down in the back row and began listening.

Simply put, Schultz's report was based on the perfect space theory that he created which solved some of the problems in the Langlands program; many of which were closely related to the BSD conjecture.

Lu Zhou had a basic understanding of his perfect space theory; therefore, it wasn't difficult for him to listen to Schultz's report.

After Lu Zhou finished listening to Schultz's report, he went to the partial differential equation lecture hall, but he didn't see any interesting reports happening.

Apparently, some people had applied to report on the three-dimensional Navier–Stokes equation, but since Lu Zhou had defeated the Millennium Prize Problem, they had to abandon their reports…

It was soon at 10 am.

The number theory lecture hall was packed.

Lu Zhou found a seat in the back row and sat down as he quietly waited for the report to begin.

Vera's palms were sweating as she nervously walked on stage.

Many people in the lecture hall were surprised at the presenter's age, but since mathematics is a young scholar's subject, they didn't overreact.

Vera took a deep breath and remembered her professor's encouraging words. She then patted herself on the cheeks as she tried to calm herself down.

"You got this… Vera Pulyuy, you can do it!"

She gave herself some encouragement and had a self-assuring look in her eyes.

The Collatz conjecture soon began.

Although her report was a little unsteady at first, she got the hang of it and began to smoothly articulate herself.

Lu Zhou had to admit that she was a very talented girl, both in mathematics and in public speaking.

Her only flaw was her introverted shy character.

Lu Zhou watched Vera and nodded with approval.

No wonder she's my student, she reminds me of my presenting style.

Half an hour had gone by, the report gradually came to an end. However, Vera didn't relax at all.

Because next up was the Q&A session; the main part of the report session.

The first question was asked by Professor Helfgott from the École Normale Supérieure. Helfgott was an analytic number theory master who proved the weak Goldbach's conjecture; he was also one of the six peer reviewers for Lu Zhou's Goldbach's conjecture thesis.

Maybe Helfgott didn't want to put Vera under too much pressure because he spoke in a non-aggressive way. He looked at the printed thesis in his hand and spoke.

"On page 9, line 7, I noticed something interesting. Φ(g) is the open subset of the complex plane f, and each of the largest connected sub-regions of Φ(g) is a branch of Φ(g)… How did you conclude this expression?"

Vera quickly turned the thesis to page nine and answered clearly.

"Φ(g) is the set of ordinary points z0 beyond the integer function g(z). On page 7, line 15, inference 1.4, I proved that the function column {gk(z)}∞/k=1 has sub-columns in the local neighborhood of point z0, which converges to the analytic function S(z)…"

When Helfgott heard Vera's explanation, he nodded with approval.

"Thank you."

The Q&A session continued.

After all, this was the International Congress of Mathematicians; the skill level of attendees was very high, and the questions were all sophisticated.

Of course, there were some less sophisticated questions.

A doctoral holder from the University of Montreal stood up and spoke.

“Excuse me, on page 11, line 13, any whole function h(z) gives $g(z)=z/2+(1-\cos\pi z)(z+1/2)/2+1/\pi(1/2-\cos\pi z)\sin\pi z+h(z)\sin 2\pi z$, which satisfies $N\subset\Phi(g)$. What is the derivation of this inference?”

Some people in the lecture hall chuckled.

Vera sighed and said, “For this part, please refer to the textbook by Letherman-S, Schleiche-D, Wood-R. The ‘3n+1’ problem-and-holomorphic-dynamics…], Professor Letherman has already given a complete proof, I won’t repeat it here…”

Anyone that asked this type of question obviously didn’t read Vera’s thesis at all.

When the guy realized he asked a stupid question, he blushed and sat back down.

Generally speaking, the report went quite well.

After the report finished, Vera ran to Lu Zhou excitedly.

“Professor! I did it… I did it!”

She clenched her fists tightly; her face was full of excitement.

As Lu Zhou looked at the excited little girl, he was happy that she could overcome her introverted personality.

There was nothing better than watching one’s students grow and develop.

This was one of Lu Zhou’s most rewarding days in his life.

Chapter 430: Conference Ending

Not only did the crowd respond well to Vera's report, but her report attracted the attention of various media outlets that attended the International Congress of Mathematicians.

For a long time, mathematics had always been viewed as a male-dominated field. Very few women were able to make outstanding mathematics achievements. This meant that any mathematics achievements by a woman were amplified.

Not to mention, the Collatz conjecture was a difficult conjecture in and of itself.

However, unfortunately for the media, this female mathematician didn't like to be interviewed, and she was almost scared of the camera.

But even though the media wasn't able to interview Vera, they were able to get ahold of Vera's supervisor.

The fourth day of the International Congress of Mathematicians.

Box..

A reporter from BBC science arranged a time to interview Lu Zhou at a coffee shop near the Barra Da Tijuca Hotel.

BBC reporter: "… We all know you had a hand in both of the reports. The proof of the Collatz conjecture was completed by your student, Vera Pulyuy. What do you think of your student?"

Lu Zhou said, "Vera is a stellar student. Whether it was her, Qin Yue, or Hardy, they are all extremely talented in number theory. I don't think we should pay attention to gender as I've met many outstanding female scholars."

BBC reporter: “I heard Vera received guidance from you when researching the Collatz conjecture, and many people think that you were the one who solved this conjecture. What do you think about those rumors?”

Lu Zhou smiled and said, “I only provided an idea to the solution, the entire proof process was done by them. There is no doubt about that. Also, as you can see, the Group Structure Method is an excellent additive number theory tool which I believe can be used to solve a variety of problems.”

Reporter: “Which problem do you think the Group Structure Method can solve? Or rather, which field?”

Lu Zhou smiled and said, “Do you really want me to say it? Actually, even if I don’t say it, I’m sure my peers could’ve guessed it by now.”

The reporter smiled and said, “Just say it, say it for the people outside of the mathematics field.”

Lu Zhou gave a simple answer—”Waring’s Conjecture.”

Waring’s Conjecture was a classic additive number theory conjecture.

This conjecture originated from the “Depths of Algebra” published by Waring in 1770. Edward Waring guessed that for every natural number k, k had an associated positive integer g(k) such that every natural number was the sum of at most g(k) natural numbers to the power of k.

As a classic additive number theory problem, there were many people who were conducting research on this problem.

The existence of g(k) had been proved by Hilbert in a rather complicated way where the case of g(2) = 4 was the quadratic sum theorem, which was proved by Larter in the eighteenth century.

Wieferich, Chandrasekhar, and Chen Jingrun proved the cases for g(3), g(4), and g(5).

If Lu Zhou had to answer which conjecture he was the most optimistic he could solve, then it undoubtedly would be the Waring's Conjecture.

"That's surprising…" the reporter said as she looked at Lu Zhou with surprise. Although she wasn't an academic scholar, she was still a science journalist, and she had a good understanding of mathematics conjectures.

The BBC reporter continued to ask, "Then, regarding your other report, we all know you have proved a solution to the Navier–Stokes equations, and the academic community also validates your proof… But, hypothetically speaking, if this proposition isn't proved, but rather disproved, how will that impact our lives?"

Lu Zhou rested his hands on his knees. He smiled and said in a relaxed tone, "If this proposition is falsified, then its meaning would be more significant. Take the smooth solution as an example, if we find that in one particular point in time, the equations are no longer smooth, then it would mean that no only have we solved an unanswered mathematics problem, but we also have discovered a new physics theorem."

The reporter said, "Then… are you disappointed?"

Lu Zhou sighed and said, "Kind of disappointed… Actually, when I worked with Professor Fefferman on this project, we always thought we found this special point in time. Unfortunately, it was just an illusion."

"How did you discover it was an illusion?"

"When I was running around the lake… As for the specific thought process…" Lu Zhou looked around and asked, "Is there a blackboard? If there is, I can explain it in detail."

The reporter said, "There's… no need."

The media reports were released the day after the interview. Some fragments of the report were edited out by BBC science, but it kept most of the original interview content.

Lu Zhou watched the news on Youtube and looked at the comment section.

Unfortunately, foreign people didn't seem to be interested in mathematics and learning, and the attention was all on Vera.

The most liked comments were basically "This chick is hot!", "I want to visit Ukraine", "Does she have a boyfriend?", etc.

Lu Zhou admitted that Vera, who stood on stage despite her fears and completed her report bravely, was an attractive sight. However, Vera's physical appearance shouldn't be the center of attention.

They're so superficial!

Lu Zhou shook his head and closed the video tab. He wasn't happy that the foreign netizens completely ignored his part of the video…

…

The main part of the International Congress of Mathematicians was the exchange of academic ideas; many wonderful theses and reports had also emerged due to this conference. Lu Zhou gained a lot through this conference.

After spending each day at the conference meaningfully, the nine-day International Congress of Mathematicians finally came to a close. The closing ceremony was of a type of dance by South Americans.

After the closing ceremony, the conference logo was taken down from the Barra Da Tijuca Hotel, and the scholars from all over the world flew back home.

It was worth mentioning that Birkar didn't find his medal.

However, the conference organizer generously held a special ceremony and made up for the lost medal.

Professor Fefferman was sitting on the plane when he said, "… Rio's public safety is disappointing. There are even participants who have been robbed on the beach. There is no doubt that this is the worst ICM in history as there has never been a theft of the Fields Medal medal before. Not to mention, the theft happened half an hour after the prize ceremony."

South America, particularly Brazil, was strong in the field of dynamical systems. This was one of the reasons why the conference was held in Rio de Janeiro.

Although the International Mathematical Union team had some security concerns about Rio de Janeiro, they didn't expect the situation to be this bad and for something unfortunate like this to happen.

The local police of Rio de Janeiro was even more disappointing.

If it weren't for the excellent conference reports, this conference would have been a complete failure…

Lu Zhou smiled and said, "Why don't they hold it in Beijing? I can guarantee the medal would have been found."

Of course, Lu Zhou felt like before the thief could even reach for the medal, the thief's hand would have been chopped off.

After being overseas for so long, other than his friends and family, Lu Zhou missed China's safety the most.

Professor Fefferman smiled.

"This is a good idea, I'm sure it will happen one day!"