

YAU MATHEMATICAL
SCIENCES CENTER

2026

ANNUAL BOOK



清华大学 丘成桐数学科学中心
Yau Mathematical Sciences Center, Tsinghua University



TABLE OF CONTENTS

Message from the Director	02
Our Leadership & Organization	04
Our History	06
About the Center	08
Our Distinguished Faculty	12
Research Team	14
Research Highlights & Progress	17
Academic Exchange & Collaboration	22
Academic Resources & Facilities	32
Study at YMSC	34
Math Talent Development	38
Affiliated Institutions	41
Global Partnerships	43

*Truth and Beauty
for Eternity*



Message from the Director

“The growth of a nation's mathematics does not lie in its ability to adhere to the existing rules and methods of the field, or to marginally expand upon the work of renowned scholars from other countries. Instead, true growth lies in forging its own unique and significant paths of research. Such endeavors will attract the interest of scholars worldwide, inspiring them to follow and learn. Although mathematics in China has passed the first stage, it has yet to reach the next level.”



After more than two decades of dedicated effort, research in pure mathematics in China - especially in core fields like Number Theory, Algebraic Geometry, Differential Geometry, and Representation Theory - has caught up with contemporary developments. The same can be said for other disciplines such as Analysis, Differential Equations, and Mathematical Physics. However, areas such as Combinatorics, Probability, and Statistics still lag behind the standards set by our European and American counterparts and require immediate improvement.

In order to attract leading scholars to work in China, we must strive to create an exceptional academic environment. Such an environment should showcase cutting-edge research that stimulates scholars and instills in them a sense of immense potential for progress. It should provide them with the necessary support to pursue the novel directions required to solve significant long-standing open problems.

Evaluation criteria for academic achievements should be reformed so that young academics do not merely aspire to win government grants, awards, and titles, such as being inducted into a national academy or even receiving a Nobel Prize. The ultimate aim of pursuing knowledge should be to unravel the mysteries of

nature, to illuminate the essence of reality at its deepest level, and, in the process, unearth the profound truth and beauty.

Cultivating a group of world-class scholars in the mathematical sciences in China will play a pivotal role in our collective pursuit of sustainable and enduring technological development into the future.

The upcoming years represent a critical period for the development of mathematics in this nation. With appropriate reform measures in place, I believe that the next five to ten years will see a new generation of world-leading, domestically nurtured scholars emerge, capable of addressing significant foundational mathematical problems.

David Hilbert famously said, “We must know, we will know!” This statement succinctly encapsulates the relentless and earnest pursuit of truth that is the essential spirit of science. We hope that the next generation will embrace this spirit. We must recognize the significance of our quest and the obstacles that lie ahead, and persist unwaveringly.

Shing-Tung Yau

Our Leadership & Organization



Director
Shing-Tung Yau



Deputy Director
Zuoqiang Shi



Deputy Director
Ling-Yan Hung

Deputy Director
Yongchang Zhu



Deputy Director
Tong Liang



Total Researchers	183	Faculty Members	94	Postdoctoral Researchers	89
Qiuzhen Chair Professors	4	Professors	29		
Associate Professors	20	Assistant Professors	45		

Data as of August 2026

Our History

2009

DEC 17

Mathematical Sciences Center (MSC) was established with Professor Shing-Tung Yau appointed as the Director.

2011

SEP 05

Postdoctoral Station was established with the first two postdocs joining MSC.

2013

FALL SEMESTER

Professor Shiu-Yuen Cheng and Eduard Looijenga joined YMSC as full-time faculty members.

DEC 18-22

The Tsinghua Sanya International Mathematics Forum (TSIMF) Facility was created.

2014

DEC 12

The Ministry of Education officially approved the establishment of YMSC under Tsinghua University.

2015

MAR 19

The YMSC Inauguration Ceremony was held.

2018

FEB 24

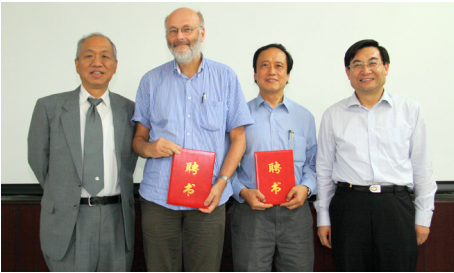
The Doctoral Program in Mathematics for International Students was approved, with recruitment starting in October 2018.

APR 1

Professor Akito Futaki, a world-class geometer and former Dean of the Department of Mathematics at the University of Tokyo, joined YMSC as a full-time faculty member.

NOV 16

Professor Donald Rubin, a world-class statistician and former Dean of the Department of Statistics at Harvard University, joined YMSC as a full-time faculty member.



2020

JUN 12

The Beijing Institute of Mathematical Sciences and Applications (BIMSA) was established at Yanqi Lake, accompanied by a signing ceremony of the Cooperation and Co-construction Agreement with Tsinghua University.

2021

APR 20

The Inaugural Ceremony of Qiuzhen College was held at Tsinghua University, along with the Appointment Ceremony of the Dean of the College.

JUN 25

The then-Tsinghua President Yong Qiu presented Professor Caucher Birkar, a Fields Medalist, with a letter of appointment to YMSC, warmly welcoming him to Tsinghua and extending congratulations on his affiliation with the university.

2022

NOV 18

Nicolai Reshetikhin, a world-class mathematical physicist, joined YMSC as a full-time faculty member.

APR 20

A ceremony was held to mark the appointment of Shing-Tung Yau as a Chair Professor at Tsinghua University.

2023

JUL 16-28

The inaugural International Congress of Basic Science was held in Beijing.

2024

APR 3-6

International conference on the theme 2024 Current Developments in Mathematics and Physics inaugurated celebrating the 15th anniversary of YMSC.

FALL SEMESTER

Professor Vladimir Markovic and Kenji Fukaya joined YMSC as full-time faculty members.

2026

MAY 11-17

Fifty Years of Geometric Analysis conference was held in Tsinghua.

About the Center

According to the
2026 QS World
University Rankings

Mathematics at Tsinghua University was ranked
112th
in the world

Previous ranking: 96th in 2009

In December 2009, Tsinghua University established the Mathematical Sciences Center, with internationally renowned mathematician Professor Shing-Tung Yau as director. In late 2014, the Ministry of Education officially approved the establishment of the Yau Mathematical Sciences Center (YMSC) at Tsinghua University.

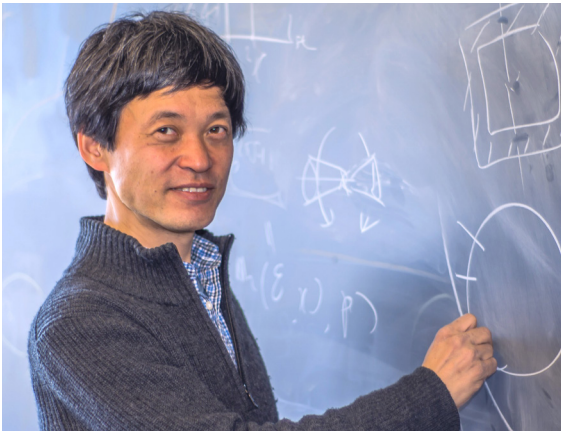
Under the leadership of Professor Yau, YMSC has achieved remarkable progress over the past decade. The Center has excelled in recruiting exceptional faculty

members, nurturing promising young scholars, and spearheading cutting-edge research encompassing a wide range of disciplines within the Mathematical Sciences. As a result, YMSC has emerged as a world-class research institute. Embracing an ethos of openness, inclusiveness, and international cooperation, YMSC continues to attract top scholars from across the globe, while also serving as a hub for a growing cohort of talented young mathematicians and physicists.



Distinguished Faculty

Over the past decade, YMSC has assembled an exceptional team of mathematicians. Leading the Center is renowned mathematician and Fields Medalist, Shing-Tung Yau, known for his groundbreaking work on the Calabi conjecture and positive mass conjecture in general relativity. World-renowned algebraic geometer Eduard Looijenga has also contributed to the faculty for nearly a decade starting from 2013. In 2019, esteemed statistician Donald Rubin joined YMSC, followed by Fields Medalist Caucher Birkar and renowned mathematical physicist Nicolai Reshetikhin in 2021. In 2024, Vladimir Markovic, Fellow of the Royal Society , and Kenji Fukaya, Member of the Japan Academy, joined the YMSC as full-time faculty members. In 2025, Professor Yongchang Zhu, an internationally leading expert in Representation Theory and an ICM 2026 plenary speaker, joined the YMSC full-time.



Emerging Mathematicians

YMSC's research team features a dynamic group of young mathematicians under the age of 35, representing roughly 45 percent of the total. Over 30 members graduated from the world's top 20 universities in mathematics. In 2025, the team welcomed 15 new full-time faculty, including Zhu Yongchang (ICM 2026 plenary speaker) and Gan Lin (recipient of the 2025 Jack Dongarra Early Career Award), along with 35 postdoctoral researchers, who earned their doctoral degrees from more than 20 universities across the globe.

Research Domains

YMSC's research endeavors encompass five major areas and three cross-disciplinary research fields. Of these, the research groups in Representation Theory, Number Theory, Mathematical Physics, Dynamical Systems, Random Analysis, and Geometry and Topology have achieved remarkable original results that have garnered international recognition. The establishment of the Beijing Institute of Mathematical Sciences and Applications (BIMSA) at Yanqi Lake has further bolstered the scope of our research in the Applied Mathematics.

Research Achievements

Research works of YMSC scholars cover both Pure and Applied Mathematics, including Representation Theory, Algebraic Geometry and Number Theory; Geometry and Topology; Analysis, Partial Differential Equations and Dynamical Systems; Mathematical physics; and Probability Theory and Applied Mathematics. More than 100 academic papers are published in SCI-indexed journals each year. In 2025, more than 230 high-level SCI-indexed papers were published, including 3 in top international journals such as *Physical Review Letters*, *Journal of Differential Geometry*, and *Nature Machine Intelligence*.

International Academic Platform

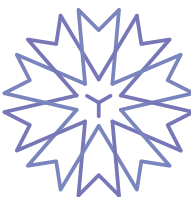
YMSC has established Memoranda of Understandings with nearly 30 world-renowned universities and research institutes, including Harvard University, Stanford University, Caltech, Oxford University, Cambridge University, University of Southern Denmark, and Imperial College London. Each year, more than 300 scholars in mathematics and related fields visit YMSC for exchanges and cooperation, including winners of the Nobel Prize, the Fields Medal, and the Wolf Prize.

Mathematics Education

Talent cultivation holds a special place at YMSC. All faculty members and researchers actively engage in undergraduate and graduate education and regularly participate in programs such as the Yau Mathematical Sciences Leaders Program. They play a crucial role in training undergraduate students at Qiuzhen College and serve as advisors to graduate students, with the aim of nurturing the next generation of mathematical leaders in China.

Mathematics Talent Incubator

YMSC is dedicated to identifying and nurturing talented young mathematicians worldwide. Various mathematics competitions and awards, such as the S.-T. Yau High School Science Award, S.-T. Yau College Student Mathematics Contests, ICCM Best Thesis Award, and ICCM Medal of Mathematics attract talented youth at different stages of their mathematical journey.



YMSC Logo
Released in 2017



YMSC 15th Anniversary
Celebration Logo
Released in 2024



A Promising Future

Today, the Mathematical Sciences hold unprecedented opportunities for the future. With strong support from Tsinghua University, YMSC is committed to pursuing excellence in both research and education, and in so doing solidifying its position as a premier global research center.



Our Distinguished Faculty



Professor Shing-Tung Yau

Professor Shing-Tung Yau is the Director of YMSC at Tsinghua University. He is a Member of the U.S. National Academy of Sciences, a Member of the American Academy of Arts and Sciences, and a Foreign Member of the Chinese Academy of Sciences. He is the emeritus William Casper Graustein Professor of Mathematics and the emeritus Professor of Physics at Harvard University. He has received the Fields Medal (1982), the Crafoord Prize (1994), the Wolf Prize (2010), the Marcel Grossmann Award (2018), and the Shaw Prize (2023).



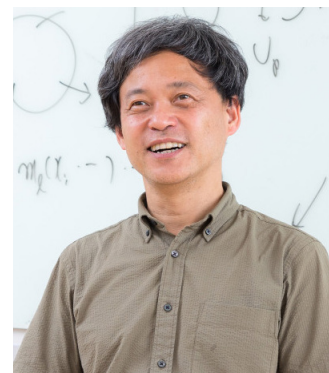
Professor Caucher Birkar

Professor Caucher Birkar is a Member of the Academia Europaea and Fellow of the Royal Society. He received the Fields Medal in 2018 for his proof of the boundedness of Fano varieties, together with contributions to the Minimal Model Problem. Professor Birkar was awarded the Leverhulme Prize in 2010 and the AMS Moore Prize in 2016. In 2025, he was elected a Foreign Member of the Chinese Academy of Sciences.



Professor Nicolai Reshetikhin

Professor Nicolai Reshetikhin is a Fellow of the American Mathematical Society and Winner of the Weyl-Wigner Award. He was an invited speaker at the ICM in 1990 in Kyoto and a plenary speaker at the ICM in 2010 in Hyderabad. He has made major contributions to the theory of Quantum Integrable Systems, to the Representation Theory of Quantum Groups, and to Quantum Topology. He and Vladimir Turaev constructed invariants of 3-manifolds which are expected to describe the quantum Chern-Simons field theory introduced by Edward Witten. In 2024, he was awarded the Chinese Government Friendship Award. In April 2026, he was elected a member of the American Academy of Arts and Sciences.



Professor Kenji Fukaya

Professor Kenji Fukaya is a Member of the Japan Academy, the Yang Yuanqing Qiuzhen Chair Professor at Tsinghua University, and a Winner of the Shaw Prize in Mathematical Sciences (2025). He developed and has studied extensively a theory in which the Lagrangian submanifolds of a given symplectic manifold are the objects of a generalized category, now called the Fukaya category, and the morphisms are the Floer homology groups. His recent work focuses on symplectic geometry and in particular has centered around the study of Lagrangian submanifolds and the Floer homology related to intersections of these submanifolds.



Professor Vladimir Markovic

Professor Vladimir Markovic is a Fellow of the Royal Society, an ICM 2014 Invited Speaker, and the Jiatai Qiuzhen Chair Professor at Tsinghua University. He is an expert in low-dimensional topology and his world-leading research has particularly improved the understanding of the topology of closed 3-manifolds. He solved well-known mathematical problems in hyperbolic geometry, including William Thurston's conjecture and the Ehrenpreis conjecture.

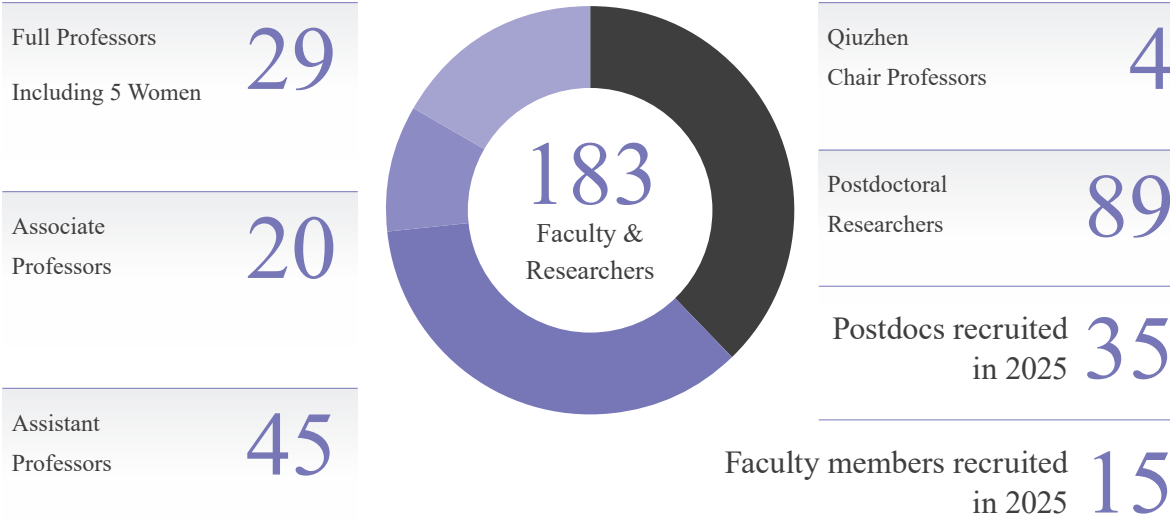


Professor Akito Futaki

Professor Akito Futaki has made seminal contributions to the field of Differential Geometry, in particular defining an obstruction to the existence of Einstein-Kähler metrics on Fano manifolds using equivariant cohomology. Professor Futaki has received the 1990 Geometry Prize and the 2011 Autumn Prize from the Mathematical Society of Japan.

Research Team

The YMSC currently has a total of 183 faculty members and researchers, including 2 Fields Medalists, 2 Shaw Prize laureates, 5 members of National Academies, and 7 invited speakers at the International Congress of Mathematicians (ICM).



Foreign Faculty Members
18

23%



Foreign Postdocs
31

35%

The international faculty at YMSC hail from the US, the UK, Germany, France, Japan, Australia, Chile, and beyond.

4 of our researchers are part of the prestigious Chang Jiang Scholars Program, 7 have received the National Science Fund for Distinguished Young Scholars, 40 have been selected for the national high-level talent program. In 2025, a total of 42 new research projects of YMSC were approved with government funds.

ICM Plenary & Invited Speakers	Shing-Tung Yau (1978)	Caucher Birkar (2018)
	Nicolai Reshetikhin (1990/2010)	Peng Shan (2022)
	Kenji Fukaya (1990)	Yongchang Zhu (2026)
	Vladimir Markovic (2014)	
Honors & Awards		
National Fund Recipients		
Lei Fu, Hao Wu, Chenglong Bao, Jianping Jiang, Peng Shan, Xiaokui Yang, Jie Ma, Yunhui Wu, Yu Qiu, Zhijie Chen, Xuecheng Wang, Hansheng Diao, Yi Zhu, Zuoqiang Shi, Lin Gan and 40 other faculty members		
Teaching Awards		
Long Jin, Yu Qiu, Jianfeng Lin, Zuoqiang Shi, Wenjia Jing, Honghao Gao		
Qiushi Outstanding Young Scholar Award		
Lei Fu, Ling-Yan Hung, Wei Song, Peng Shan		
Alibaba DAMO Academy Young Fellow Award		
Hao Wu		
Beijing Mao Yisheng Science and Technology Award		
Yu Qiu		

2025-2026 Awards & Honors



Shing-Tung Yau was named the 2025 Cover Personality of the Year by China Newsweek, an honor that recognizes builders across fields who embody "long-termism" and drive social progress.



Caucher Birkar was elected a Foreign Academician of the Chinese Academy of Sciences for his groundbreaking contributions to birational geometry and his dedication to fostering mathematical talent and international cooperation in China.



Kenji Fukaya, member of the Japan Academy and researcher at YMSC, received the 2025 Shaw Prize in Mathematical Sciences for his pioneering work on symplectic geometry, especially for envisioning the existence of a category — nowadays called the Fukaya category.



Nicolai Reshetikhin was elected a Fellow of the American Academy of Arts and Sciences, joining 250 scholars honored for their outstanding contributions across mathematics, physical sciences, life sciences, social sciences, and the humanities.



Chenglong Bao's team was recognized with the 2025 Representative Algorithm in Chinese Medical AI for their innovative work on weakly paired data generation and cryo-EM software addressing the preferential orientation problem.



Lin Gan was honored with the 2025 Jack Dongarra Early Career Award for his exceptional contributions to developing scalable algorithms, optimizing performance, and pioneering FPGA-based frameworks for acceleration.



Penghui Li received the ICBS 2025 Frontiers of Science Award, jointly with his collaborators, for a unified proof of the two-dimensional generalization of the Chevalley theorem for all reduced Lie algebras and reduced algebraic groups.

6 faculty members from the YMSC received ICCM 2025 Awards:

Wilfried Schmid International Cooperation Award	Yang Prize	ICCM Silver Medal Award	ICCM Best Paper Award
Caucher Birkar	Peng Shan	Yihang Zhu	Yunhui Wu, Hansheng Diao, and Honghao Gao

Research Highlights & Progress

YMSC's research spans 5 major areas and 3 interdisciplinary fields, organized into six teams. Among them, the Algebra and Number Theory, Mathematical Physics, and Analysis and Dynamical Systems have achieved world-class original results with significant international impact.

Representation Theory, Algebraic Geometry and Number Theory

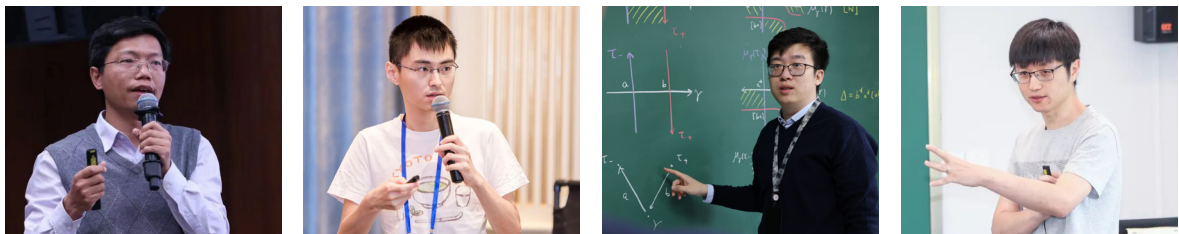
Caucher Birkar established boundedness and moduli spaces for algebraic varieties, and solved several conjectures on the structure of Fano fibrations; Lin Chen proved the unramified geometric Langlands conjecture; Hansheng Diao, Heng Du, Koji Shimizu, and their collaborators achieved breakthroughs in p-adic geometry—including the Riemann–Hilbert correspondence, monodromy conjectures, prismatic classification, and the theory of adic stacks; Will Donovan and Yu Qiu developed frameworks for derived symmetries and spaces of stability condition; Lei Fu proved the Laumon–Malgrange conjecture for local Galois representations; Yuke Hu proved the subconvexity bounds for L-functions; Xiang He, Penghui Li, Peng Shan, and Mao Sheng made major advances on the irreducibility of Hurwitz spaces, a two-dimensional generalization of Chevalley's theorem, conjectures on Hecke algebras, and nonlinear Hodge theory; Bin Xu and Yihang Zhu obtained important progress on the (local) Langlands correspondence and the trace formula.

Geometry and Topology

Honghao Gao proved the potential correspondence between Lagrangian fillings and cluster algebra seeds, and established lower bounds for the complete classification of Lagrangian fillings; Jianfeng Lin and his collaborators made a series of advances in the study of diffeomorphism groups of four-manifolds; Yong Lin and Shing-Tung Yau introduced Ricci curvature on graphs, initiating geometric analysis on graphs; Yau and his collaborators published a series of papers on the positive quasi-mass problem, solving the Penrose problem posed fifty years ago. Together with collaborators, he established a general theory for deformed Hermitian Yang–Mills equations; Yunhui Wu and his collaborators systematically advanced research in the geometry and spectral theory of random hyperbolic surfaces.

Analysis, Partial Differential Equation (PDE) and Dynamical Systems

Zhijie Chen resolved the conjecture on the critical point structure of multiple Green's functions on rectangular tori; Bin Gui innovatively established a systematic theory of unbounded operators for fusion products of representations of conformal nets; Long Jin made contributions to semiclassical measures on hyperbolic surfaces; Jinxin Xue proved the existence of non-collision singularities in the four-body problem, settling the more than 100-year-old Painlevé conjecture; Pin Yu made contributions to shock wave formation and the nonlinear stability of Alfvén waves.



Mathematical Physics

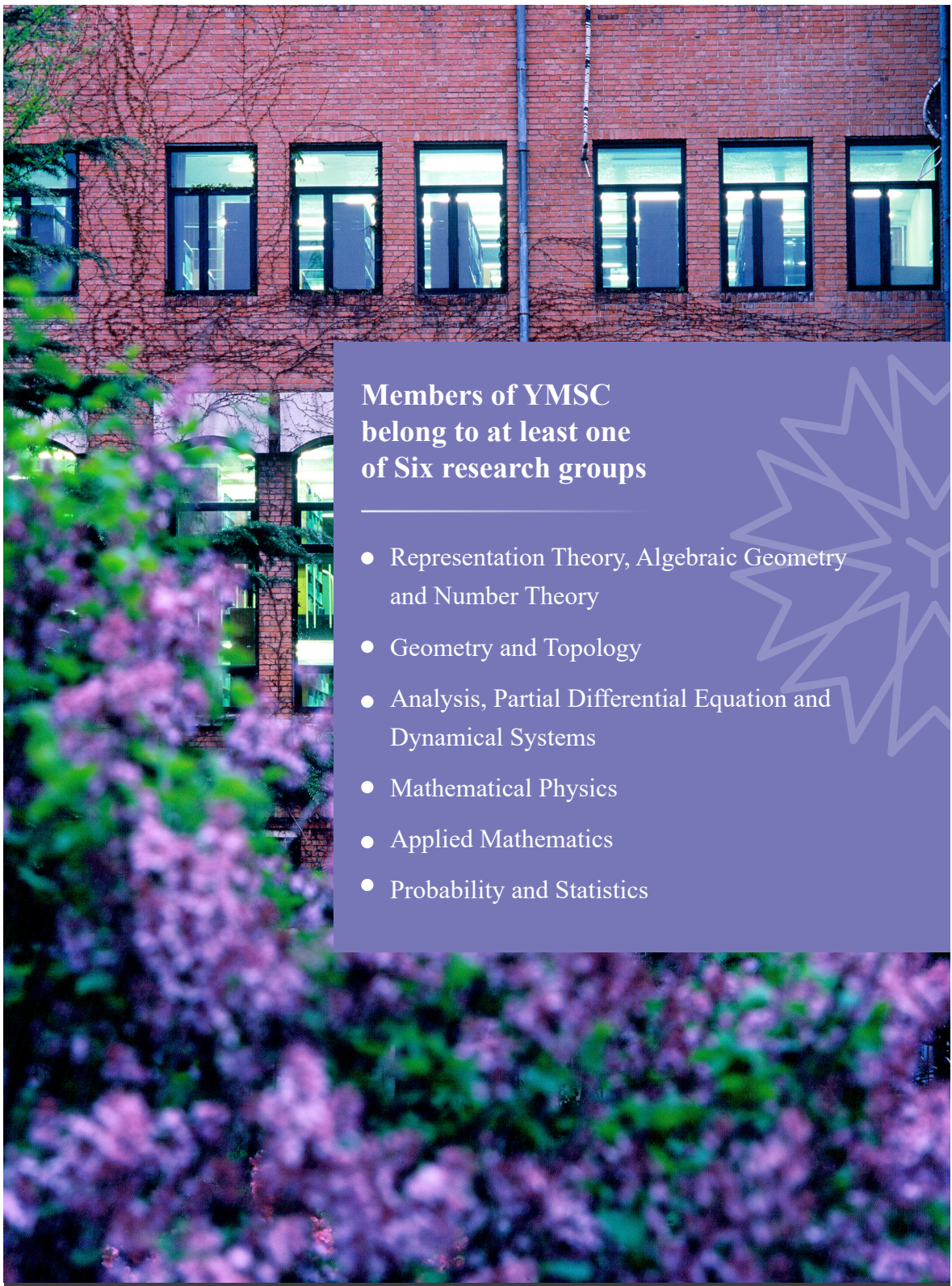
Si Li solved the Landau–Ginzburg mirror symmetry conjecture for singularities; Zhengwei Liu and his collaborators proposed a unified framework for classical simulation of quantum circuits; Ling-Yan Hung and her collaborators proposed a method using topological quantum field theory to search for and construct exact discretized versions of conformal field theories (CFTs); Robert McRae established new criteria for the rationality of vertex operator algebras; Reshetikhin constructed spin Calogero–Moser chains and proved their superintegrability; Wei Song and her collaborators constructed holographic duality models beyond the AdS/CFT framework and discovered new structures of spacetime geometry and quantum entanglement; Junya Yagi and his collaborators proposed a new approach based on quantum cluster algebras to the tetrahedron equation—the fundamental equation of three-dimensional integrable system; Chi-Ming Chang proposed a "serendipity" framework revealing the structure and generation mechanism of typical black hole microstates; Hao Zheng developed higher fusion category theory; Jie Zhou constructed regularizations of integral representations of correlation functions in two-dimensional chiral conformal field theory.

Applied Mathematics

Chenglong Bao proposed unpaired data learning methods and memory-friendly neural network training methods; Jie Ma improved the lower bound of the Ramsey number first established by Erdős in 1947; Zuoqiang Shi established a systematic theory and algorithms for differential equation models in machine learning; Chunmei Su developed high-precision structure-preserving algorithms for curvature flows; Lingyun Qiu developed stable inversion theory and fast algorithms for imaging problems in complex media; Jun Wang established a framework for fast adaptive algorithms for parabolic partial differential equations; Zhaohui Wei characterized the complete dynamical process by which gradually increasing noise affects quantum advantage; Yuan Zhou proposed the PhyE2E model, which automatically derives spatial physical laws from observational data; Yi Zhu developed the theory and numerical methods for wave propagation in topological materials.

Probability and Statistics

Chenlin Gu and his collaborators proved that the macroscopic behavior of non-gradient exclusion process is governed by a unified hydrodynamic limit equation; Jianping Jiang and his collaborators provided a rigorous proof of the conjecture by C.N. Yang and T.D. Lee in 1952: the zeros of partition functions determine phase transitions in the Ising model; Wu Hao and her collaborators have solved the connectivity probability conjecture for the loop $O(n)$ model, establishing a correspondence between connectivity probabilities and correlation functions in conformal field theory; Fan Yang and her collaborators established identifiability theory for mediation analysis with nonrandomly missing data; Yuhong Yang established the asymptotic optimality and fundamental limitations of the model averaging method MMA.



Members of YMSC belong to at least one of Six research groups

- Representation Theory, Algebraic Geometry and Number Theory
- Geometry and Topology
- Analysis, Partial Differential Equation and Dynamical Systems
- Mathematical Physics
- Applied Mathematics
- Probability and Statistics

Representation Theory, Algebraic Geometry and Number Theory

This group focuses on research in algebraic and geometric representation theory, category theory, I-adic cohomology and applications, moduli spaces, Hodge theory, singularity theory, and arithmetic geometry.

Professors	Caucher Birkar, Fu Lei, Qiu Yu, Shan Peng, Sheng Mao, Zhu Yihang, Zhu Yongchang
Associate Professors	Diao Hansheng, William Donovan, Xu Bin, Li Penghui, Hu Yueke
Assistant Professors	Dylan Allegretti, Chen Lin, Du Heng, He Xiang, Koji Shimizu, Su Changjian, Wang Chengxi, Zheng Zhiwei, Artane Jérémie Siad, Li Huajie, Jiao Junpeng, Cui Peiyi
Postdoctoral Researchers	Besson Marc Julien, Bongiorno Federico, Lamarche Alicia Mae, Otani Takumi, Sahoo Satyabrat, Theodoros Stylianos Papazachariou, Chen Fei, Cheng Xiaojiang, Jia Boming, Li Huihui, Li Nianzi, Li Shang, Lin Xiaojin, Liu Hexu, Meng Cheng, Wu Haoyu, Xu Shi, Zhao Qixian, Yang Jie, Wang Xin, Ma Qiang, Li Zehao, Zhao Ruishen, Chaudhuri Priyankur, Crislaine Kuster, Malors Emilio Espinosa Lara, Liu Miantao, Marco Rampazzo

Geometry and Topology

Research of this group covers a broad range of research including differential geometry, geometric analysis, Teichmüller theory, low-dimensional topology, high-dimensional manifold topology, complex geometry, etc.

Professors	Shing-Tung Yau, Kenji Fukaya, Akito Futaki, Lin Yong, Vladimir Markovic, Wu Yunhui
Associate Professors	Lin Jianfeng, Xiao Jian, Gao Honghao
Assistant Professors	Chen Weiyan, Sun Weifeng, Zhu Bo, Zhu Zhifei
Postdoctoral Researchers	Choudhury Diptaishtik, Shanon Rubin, Telpukhovskiy Ivan, Fan Shuanghe, He Xiang, Hu Jiahao, Niu Weizhe, Qing Chenghao, Sun Haotian, Wang Daxun, Zhang Lei, Liu Yang, Kang Fan, Li Wenzhe, Benjamin Yamin Zhou, Dang Quang Tuan, Chi Wenhao, Zhang Xiaoxiao, Gu Pingxin

Analysis, Partial Differential Equation (PDE) and Dynamical Systems

This group studies the evolution of both finite dimensional and infinite dimensional phase spaces of ordinary or partial differential equations originating from dynamical systems, general relativity, hydrodynamics, etc.

Professors	Chen Zhijie, Yitwah Cheung
Associate Professors	Jin Long, Jing Wenjia, Wang Xuecheng
Assistant Professors	Gui Bin, Lan Yang, Zhang Cheng, Li Li, Zhang Jingxuan
Postdoctoral Researchers	Artiles Calix Albert Alejandro, Zhang Shihong, Kumar Pranav, Debam Biswas, Cui Han, Long Chengang

Mathematical Physics

Mathematical Physics group are devoted to the interdisciplinary study between mathematics and physics, including superstring theory, gauge/gravity duality, supersymmetric theories and their applications in geometry, category theory and topological order in condensed matter physics, machine learning in mathematical physics, etc.

Professors	Ling-Yan Hung, Liu Zhengwei, Nicolai Reshetikhin, Song Wei, Zheng Hao, Li Si
Associate Professors	Babak Haghighat, Yan Wenbin, Zhou Jie, Chi-Ming Chang, Robert McRae
Assistant Professors	Liu Ziwen, Wang Qingrui, Junya Yagi, Zhou Yan, Su Ning
Postdoctoral Researchers	Arenas Henriquez Gabriel Dario, Bason Davide, Bishal Deb, Boujakhrout Youssra, Elmi Mohamed Abdulwahid Jama, Holden Jack David, Nikolaos Angelinos, Sarthak Duary, Shim Myungbo, Singh Rahul, Daniel Eduardo Galviz Blanco, Chen Liangyu, Jin Anran, Yu Song, Ruan Yuze, Shao Yuguo, Xu Rongge, Pan Qiaoyin, Ge Dongsheng, Wei Fuchuan

Applied Mathematics

The main research directions include Post-quantum cryptography, Mathematical modeling, Numerical analysis, Numerical solutions to partial differential equations, Computational dynamical systems, Numerical algebra, Inverse problems, Image processing, Large-scale optimization methods, Mathematical theories and computations in material science, Applied analysis, Machine learning theory, Operations and revenue management theory.

Professors	Ma Jie, Shi Zuoqiang, Zhu Yi
Associate Professors	Bao Chenglong, Qiu Lingyun, Zhou Yuan, Gan Lin, Wei Zhaohui
Assistant Professors	Angelica Aviles-Rivero, Chen Yuewen, Deng Quanling, He Juncai, Hu Jiang, Hans Emil Oscar Mickelin, Li Hongjie, Liu Jinpeng, Liu Shuang, Pang Tongyao, Su Chunmei, Wang Jun
Postdoctoral Researchers	Asaadi Mohsen, Zhang Zhen, Miao Borui, Cui Chen, Su Haibin, Li Yongtao, Hu Yueguang, Zhang Wentao, Ren Jingchuang, Peng Yang

Probability and Statistics

Probability studies the mathematical laws of random phenomena. The main research areas include: stochastic analysis, stochastic differential equations, limit theory and statistical physics.

Statistics is the foundation and an essential component data science. The main research areas include: causal inference, missing data, model selection and model averaging, multi-armed bandits, high-dimensional data and machine learning.

Professors	Per Johansson, Wu Hao, Yang Fan (F), Yang Yuhong
Associate Professors	Yang Fan (M)
Assistant Professors	Gu Chenlin, Jiang Jianping, Wu Yunan, Li Wenbo, Peng Jingfu, Dong Jinshuo
Postdoctoral Researchers	Chen Yuanxing, Cui Bosen, Hu Jie, Li Yun, Zhang Yanhang, Vu Pham Hieu Trung

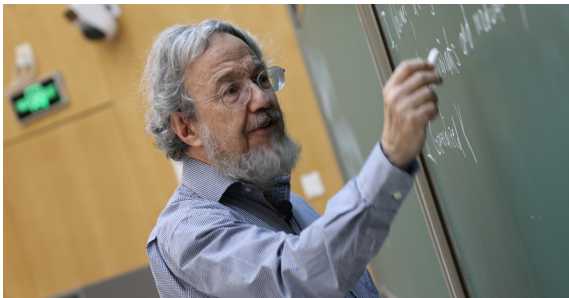
Academic Exchange & Collaboration

YMSC seeks to provide a free and open research atmosphere for all scholars at the Center. Each year, YMSC organizes a wide variety of events, large and small, to facilitate the exchange of scientific ideas. These include regular seminars, research-level courses, and international workshops. Top mathematicians regularly speak at the Modern Mathematics Lectures, Master Forums, and Special Lectures.

Outside the campus, the TSIMF and BIMSA offer dynamic exchange platforms for mathematicians and scientists, often attracting Nobel Laureates, Wolf Prize Winners, and Fields Medalists.

In 2025, YMSC welcomed around 50 visiting scholars and maintained a robust schedule of 479 academic events, which included:

Modern Mathematics Lectures Series	26	Special Lectures	69
Distinguished Lectures	13	Seminars	371



International Congress of Basic Science

On July 13, 2025, the International Congress of Basic Science (ICBS 2025) commenced at China National Convention Center. The opening ceremony was attended by four Fields Medalists including Shing-Tung Yau, three Nobel Laureates, two Turing Award Laureates including Andrew Chi-Chih Yao, as well as Li Luming, President of Tsinghua University. The congress brought together more than 80 academicians from China and abroad, representatives from over 10 national mathematical societies, and nearly 1,000 scholars and students from academic institutions and universities worldwide.



The 13-day congress featured more than 500 plenary lectures, thematic academic sessions, and satellite conferences, making it a landmark global gathering for basic sciences. Nearly 1000 secondary-school students from almost 100 schools worldwide also attended the congress, with online and in-person participation exceeding 6 million. Six recipients of the Basic Science Lifetime Awards delivered keynote lectures and shared the latest scientific advances, including Samuel C. C. Ting, Steven Chu, David J. Gross, Robert Tarjan, Shigefumi Mori, and George Lusztz. More than 100 Frontiers of Science award recipients presented their recent work, fostering extensive discussions among established scholars and early-career researchers across the globe.

Initiated by Shing-Tung Yau in 2023 and held annually, the congress has run for three consecutive editions. It focuses on three major fields - mathematics, physics, information science and engineering, covering frontier theories and interdisciplinary research with particular emphasis on cutting-edge developments in AI theory. Nurturing future generations of scientists through outreach programs for students across different educational levels stands as another core priority.

YMSC faculty organised a series of youth-focused science activities, including the ICBS Undergraduate Thesis Award, poster exhibitions for undergraduate academic achievements, and poster exhibitions for high-school students. YMSC also hosted events such as “Tsinghua Day — Mathematics and Physics Frontier Forum” and “Wisdom Voyage — ICBS Science Outreach Tour”. These events gathered leading mathematicians and physicists to engage with university and secondary-school students, jointly exploring the wonders of science.

Distinguished Lectures

In 2011, YMSC launched the Master Memorial Lecture Series, dedicated to four distinguished Tsinghua University mathematicians: Shiing-Shen Chern, Loo-Keng Hua, Paolu Hsu, and Chia-Chiao Lin. Additional named lecture series were also established, including the Chen-Ying Chiou Distinguished Lectures and the Yip Shing Yiu and Yip Chia-Chi Sponsorship Lectures. In 2024, the newly established Hermann Weyl Distinguished Lecture Series was launched in honor of his fundamental contributions to mathematical

physics, including quantum field theory, general relativity, and quantum mechanics. That same year, several renowned scholars delivered lectures, including Fields Medalist Maxim Kontsevich, U.S. National Academy of Sciences member Kathryn Roeder, American Academy of Arts and Sciences member Bjorn Engquist, and professors David Nadler (University of California, Berkeley), Hiroshi Ooguri (California Institute of Technology), and George Daskalopoulos (Brown University).

YMSC Courses

YMSC offers advanced courses on topics belonging to a wide range of areas, including Algebra, Number Theory, Topology, Geometry and Geometric Analysis, Imaging Science, Computational Mathematics, Applied Mathematics, Mathematical Physics, and Statistics. Visiting scholars to YMSC often offer various other minicourses in their areas of specialty. Recent Developments around the Atiyah-Floer Conjecture, given by renowned geometer Kenji Fukaya, Computational Conformal Geometry, given by Gu Xianfeng. A key part of YMSC's mission is to inspire the next generation of young mathematicians and scientists to take part in basic research. Since 2010, YMSC has offered more than 300 courses that are publicly accessible to students in China and abroad, with many being livestreamed online.



Seminars

YMSC faculty and postdocs host regular seminars in almost 20 mathematical fields, some of which include Geometry, Topology, Algebraic and Complex Dynamics, Number Theory, Probability, Microlocal Analysis and Applications, Quantum Scientific Computation and Quantum Artificial Intelligence and Foundations and Applications of AI.



Postdoc Workshops

The Center hosts several Postdoc Workshops each semester, with the goal of providing a platform for postdoctoral researchers to exchange ideas, report on their research results, and find new opportunities for collaboration. In 2025, a total of 7 postdoctoral academic seminars were successfully held, attracting over 1000 participants cumulatively.



Workshops

YMSC also hosts domestic and international workshops and specialised seminars, attracting experts both within China and abroad to discuss the latest developments in mathematics. For example, Professor Caucher Birkar organized the Algebraic Geometry Seminar, the Birational Geometry Workshop, and a workshop on Moduli Spaces in Mathematics. The Center also held the Zhongguancun Number Theory Colloquium, the Geometric Representation Seminar, a workshop on the Frontiers of Computational Science, and a workshop on SPDEs and related fields. The extensive series of academic events has boosted exchanges and integration among researchers at home and abroad, cultivating a dynamic, diverse and profound academic atmosphere for in-depth scholarly discussions.



Modern Mathematics Lecture Series

The Modern Mathematics Lecture Series was founded in March 2012. The series invites top international mathematicians to give one-hour lectures each Friday, aiming to introduce the latest research results and the frontiers of mathematics, and to build an important academic platform for Chinese scholars to communicate with their peers at home and abroad. In 2025, over 30 lectures were organized as part of the series. The speakers represented a diverse range of leading mathematicians: Ulf-G. Meißner (Member of the European Academy of Sciences); ICM invited speakers Mario Bonk (2006), Zeev Rudnick (2014) and Jiao-Yang Huang (2026); American Mathematical Society Fellows Kusra Rafi, Xiaojun Chen, Lei Ni and Jie Shen; as well as Wei-Jie Su of the University of Pennsylvania and Yilin Wang of the Institut des Hautes Études Scientifiques (IHÉS).

International Congress of Chinese Mathematicians (ICCM)

Launched by Professor Shing-Tung Yau in 1998, the International Congress of Chinese Mathematicians (ICCM), aims to strengthen academic connections between Chinese mathematicians both within China and abroad. Held every 3 years, participants discuss the latest research progress in the Mathematical Sciences, thereby promoting the development of mathematics in China and throughout the world.



Master Forums

The Master Forum was initiated by Professor Shing-Tung Yau in January 2013. So far about 1,650 celebrated scholars in mathematics and related academic fields have participated in the Master Forums, including three Nobel Prize Laureates, seven Fields Medalists, and five Wolf Prize Winners. They have presented about 900 lectures on cutting-edge research in mathematics and related disciplines.

Special Lectures

The Special Lecture Series was founded in 2018. Each year, YMSC invites world-renowned scholars in mathematics to give Special Lectures.

ICBS 2025 China Annual Review of Mathematics

The ICBS 2025 China Annual Review of Mathematics was held at Tsinghua University from August 18 to 23, 2025. Organized by BIMSA and hosted by YMSC, the workshop aimed to build a high-level academic exchange platform for researchers in mathematics, promote integration of pure and applied mathematics, and facilitate the sound development of mathematics in China.

Fifty early- and mid-career mathematicians from 20 universities and research institutions worldwide presented their latest research findings and conducted in-depth discussions across 10+ key academic directions: number theory, algebraic geometry, mathematical physics, geometry, topology and combinatorics, differential equations and dynamical systems, numerical analysis and image processing, artificial intelligence and algorithms, scientific computing, and quantum computing. Participants highly recognized the high-quality presentations and intensive academic atmosphere, noting that the event effectively boosted interdisciplinary integration and international academic cooperation.

The Outstanding Senior Talent Award and the Outstanding Young Talent Award were announced and presented at the closing ceremony. A total of 15 mathematicians received the honors. Five mathematicians were awarded the Outstanding Senior Talent Award: Jixiang Fu (Fudan University), Nai-Chung Conan Leung (The Chinese University of Hong Kong), Peng Shan (Tsinghua University), Juncheng Wei (The Chinese University of Hong Kong), and Wu Jie (Beijing Institute of Mathematical Sciences and Applications). Ten mathematicians received the Outstanding Young Talent Award: Hao Wu, Yunhui Wu, Yi Zhu, Chenglong Bao, and Penghui Li (Tsinghua University); Yichao Tian and Wenhao Ou (Chinese Academy of Sciences); Zizhuo Wang (The Chinese University of Hong Kong, Shenzhen); Yu Deng (University of Chicago); and Wei-Jie Su (University of Pennsylvania).



Fifty Years of Geometric Analysis



The Fifty Years of Geometric Analysis Anniversary Symposium was successfully held at Tsinghua University from May 11 to 17, 2026. Hosted by the YMSC and co-organized by Qiuzhen College, the Morningside Center of Mathematics of CAS, and BIMSA, the event marked key developmental milestones for geometric analysis, celebrating the 80th birthday of Leon Simon, the Proof of the Calabi Conjecture & the Uhlenbeck–Yau Theorem. It embodies profound academic commemorative significance, disciplinary heritage and forward-looking academic vision. Nearly 20 academicians and over 300 distinguished scholars from universities and research institutions across the globe participated onsite, with international researchers joining online for synchronous academic discussions.

As a foundational figure and core pioneer driving the development of geometric analysis, Shing-Tung Yau fully engaged in all sessions of the symposium. Following the opening ceremony on May 11, Professor Yau delivered the opening plenary lecture entitled *Brief History of Modern Geometric Analysis and Its Appreciation*, systematically outlining the developmental trajectory of geometric analysis since the 1970s.

The symposium featured 65 high-level academic lectures covering seven major frontier research directions: complex and Kähler geometry, geometric measure theory and minimal surfaces, geometric flows, gauge theory and low-dimensional topology, convex and affine geometry, discrete geometric analysis and computational geometry, as well as complex analysis and partial differential equations. Speakers hailed from top-tier universities and research institutions across China, the United States, Germany, Japan, Australia, Switzerland, and the United Kingdom, demonstrating the robust international vitality and cohesive academic community of geometric analysis.

Concurrent with the symposium, the special exhibition “A Genealogy of Pioneers in Geometric Analysis” was launched in the lobby of Tsinghua University’s Main Building. The exhibition systematically presents the academic achievements and intellectual trajectories of ten foundational scholars in the field: Shing-Tung Yau, Richard Hamilton, Richard Schoen, Karen Uhlenbeck, Simon Donaldson, Clifford Taubes, Grisha Perelman, Frederick Almgren, Leon Simon, and Nigel Hitchin.

The commemorative book *50 Years of Geometric Analysis*, edited by Academician Shing-Tung Yau, was officially released during the event.



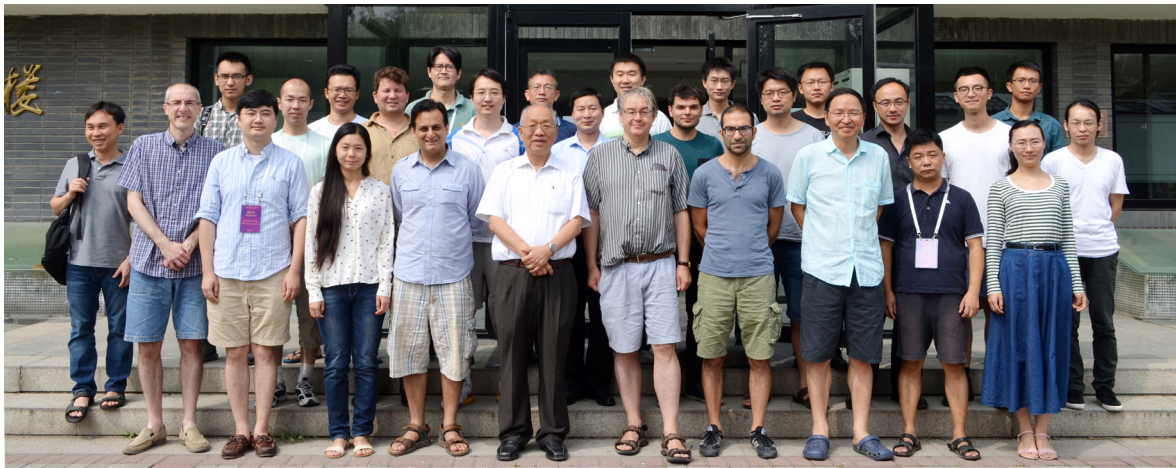
Important Events



Strings 2016, the largest and most important conference in string theory, was held at Tsinghua University.



2016, The 7th International Congress of Chinese Mathematicians (ICCM)



2017, International Conference on Forty Years of Calabi-Yau Theory



2017, Tsinghua University awarded an honorary doctorate to French mathematician Jean-Pierre Serre and he gave a lecture to students at Tsinghua.



2021, 110th Anniversary of Birth of Professor Shing-Shen Chern



2023, The 10th anniversary of Tsinghua Sanya International Mathematics Forum



2017, A conference was held to celebrate the 90th Anniversary of the Establishment of Mathematical Disciplines at Tsinghua University.



2024, Current Developments in Mathematics and Physics

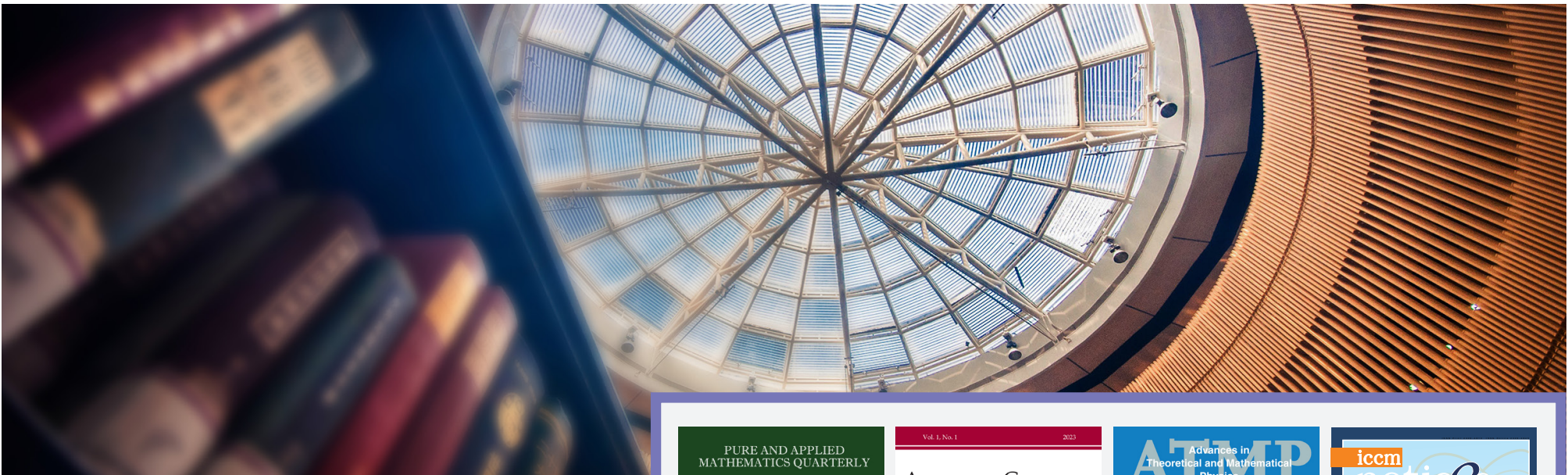


2026, Fifty Years of Geometric Analysis

Academic Resources & Facilities

Academic Journals Publication

In a bid to promote world class academic publishing, YMSC is currently responsible for editing and managing four mathematical journals: Pure and Applied Mathematics Quarterly, Advances in Theoretical Mathematical Physics, Algebraic Geometry and Physics, and Journal of Algebraic Geometry. In addition, YMSC assists in publishing of various expository publications, such as Mathematics, Science, History and Culture, and ICCM Notices.



Faculty serving in PAMQ

Editor-in-Chief: Shing-Tung Yau

Executive Editor-in-Chief: Yitwah Cheung

Editorial Board: Zhengwei Liu, Xiaokui Yang

Faculty serving in ATMP

Editor-in-Chief: Lars Andersson (BIMSA)

Executive Editors: Babak Haghighat, Junya Yagi, Hossein Yavartanoo (BIMSA)

Deputy Editors-in-Chief: Ling-Yan Hung, Zhengwei Liu

Advisor: Shing-Tung Yau

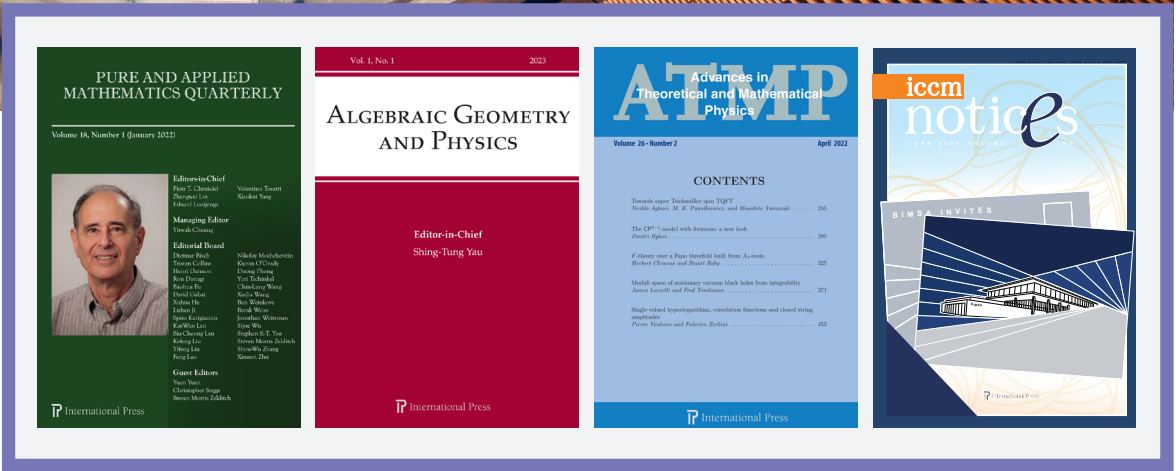
Faculty serving in AGP

Editor-in-Chief: Shing-Tung Yau

Editorial Board: Caucher Birkar, Babak Haghighat, Nicolai Reshetikhin, Mao Sheng, Artan Sheshmani (BIMSA)

Faculty serving in JAG

Editorial Board: Caucher Birkar



Academic Resource Platform

The academic resource platform MathSciDoc has curated a comprehensive collection of over 10,000 high-quality research papers, videos of 35 course lectures and 132 seminars and reports, covering a wide range of fields including pure mathematics, applied mathematics, and computational mathematics. Freely accessible to researchers and students, the platform has become one of the most frequently recommended mathematics-specific paper archive by mainstream search engines in China.

Additionally, a Mathematics Discipline Library is currently under development, with branches located at Zhiyuanzhai and Shuangqing Library, housing a collection of more than 4,000 books.

<http://archive.ymsc.tsinghua.edu.cn/>

Study at YMSC



Nurturing the next generation of leading mathematicians is a top priority for YMSC. Fields Medalists Shing-Tung Yau and Caucher Birkar, top mathematical physicist Nicolai Reshetikhin, Japan Academy member Kenji Fukaya, Royal Society Fellow Vladimir Markovic, and other first-class mathematicians offer courses for undergraduate and graduate students.

YMSC faculty and postdoctoral fellows serve on Qiuzhen College's Teaching and Academic Degree Committee, while also acting as instructors, thesis advisors, and mentors. The YMSC continuously enhances its core curriculum, offering specialized courses through small-class and tiered instructional approaches specifically designed for the "Yau Mathematical Sciences Leaders Program".

In 2025, YMSC faculty taught 76 undergraduate courses and 85 graduate courses in Qiuzhen College, and offered 40 public courses.

Qiuzhen College

Qiuzhen College was established at Tsinghua University in 2021 with the goal of providing world-class mathematical education, led by its founding dean Professor Shing-Tung Yau. In the same year, the first batch of students was admitted to the "Yau Mathematical Science Leaders Program", while students from the "Yau Mathematical Science Talents Program" (previously established in 2018) would continue their study in the college. Consistent with its founding mission, Qiuzhen College cultivates what Professor Yau describes as "Generals of Science" - future leaders who will advance mathematical and theoretical physics research both in China and worldwide.



Achievements in 2025

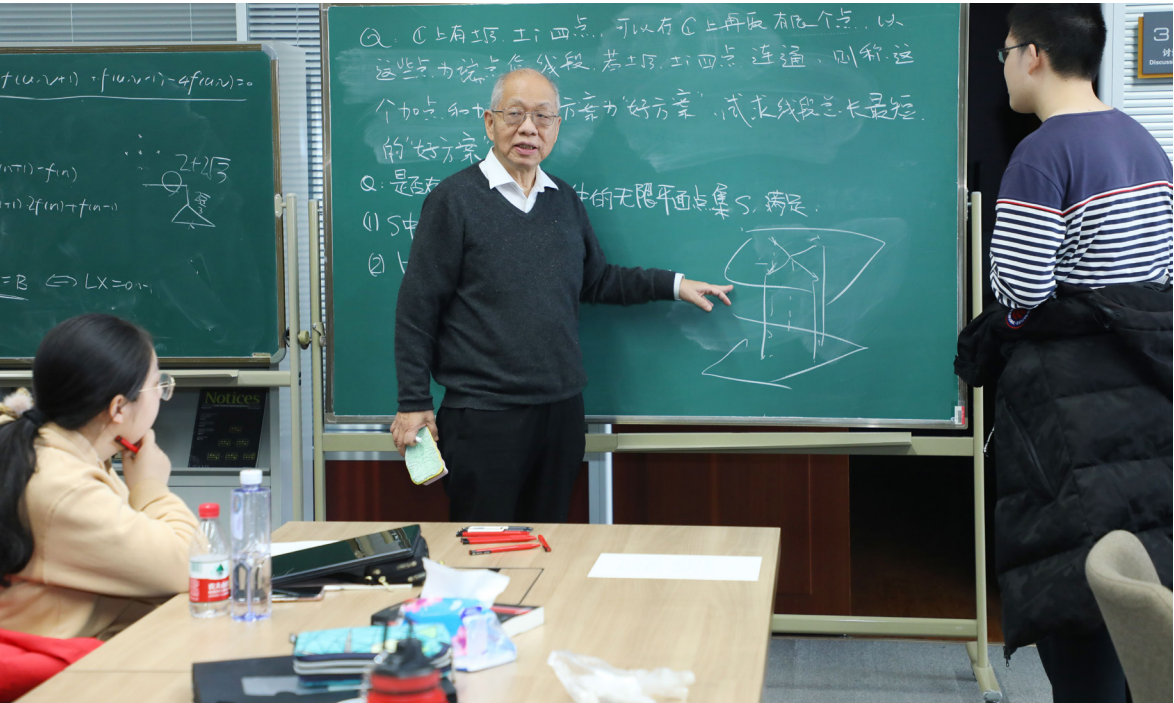
Under the dedicated guidance of YMSC faculty, students from Qiuzhen College have achieved outstanding results in academic research and disciplinary competitions. For students in the Mathematics Leading Talent Program, the doctoral qualifying examination pass rates stand at 81% for the 2021 cohort and 27% for the 2022 cohort. The 2023 cohort delivered particularly remarkable performance: two students passed the doctoral qualifying examination merely three years after enrollment. Jiayi Chen (2023 cohort) passed all eight examinations on her first attempt, setting a new college record and earning the 2025 Tsinghua University Undergraduate Special Scholarship.

The students have also yielded fruitful research outcomes. Two students won the Outstanding Undergraduate Thesis Award at the 2025 International Congress of Basic Science. Jie Ying, a 2024-cohort doctoral student, published a high-level paper as the first author in Nature Machine Intelligence.

Qiuzhen College students also demonstrated exceptional competitiveness in mathematical contests. A total of 100 students participated in the 3rd Putnam Competition Simulation Contest. The highest score of 71 points corresponded to the 13th global ranking, with 36 students securing positions among the world's top 100, showcasing solid academic foundations and strong comprehensive competitiveness. At the 15th S.-T. Yau College Student Mathematics Competition, Qiuzhen College students obtained 27 individual discipline awards, including two gold medals across different categories. Notably, Fanyi Li (2022 cohort) claimed the Individual Overall Gold Medal.



Undergraduate Program



Yau Mathematical Sciences Leaders Program plans to recruit from around the world no more than 100 middle school students each year, who show great potential in mathematics in addition to being excellent students. The program includes a three-year undergraduate program, a two-year graduate program, plus a three-year post graduate program leading to a doctorate. It is open mainly to the first and second year Chinese high school students, with some exceptions for outstanding third-year junior high school students. The program also accepts overseas students from the 10th grade up, with exceptions for outstanding 9th graders. The freshmen at Tsinghua University can apply as well.

Yau Mathematical Sciences Leaders Program is open to high school seniors who are eligible to apply for the Unified College Entrance Examination, as well as students who are enrolled in their second year of high school. No more than 30 students will be admitted each year. Applicants are required to take a comprehensive test, and disciplinary competence test. Students in the program are required to complete a four-year undergraduate program in the Mathematical Sciences.

Graduate Program

Aiming to cultivate excellent mathematical research talents, YMSC started to recruit graduate students in the fields of Pure and Applied Mathematics in 2012. Since 2019, YMSC started to recruit outstanding international students. The Center aims to train international students with a solid theoretical foundation, innovative ideas, global vision, and the ability to conduct independent research and engage in cutting-edge research in mathematics.

Since 2013, YMSC has established a special scholarship for outstanding doctoral students. The selected candidates will receive a full scholarship for three years. In 2022, Qiuzhen College started to accept applications from international students worldwide for doctoral studies at Tsinghua University. It has set up the scholarship with a financial package comparable to the ones offered by other world-class universities, such as Harvard University and Princeton University. Outstanding students will be provided with additional support.

Starting in the fall semester of 2022, the enrolled students will be registered under Qiuzhen College.

Admissions Website: <https://yz.tsinghua.edu.cn/>



Math Talent Development

YMSC has developed a comprehensive mathematical talent nurturing system, with the aim of developing world-class mathematicians. The system focuses on cultivating interest at the middle school level, consolidating basic skills at the university level, and encouraging innovation at the graduate level. It has reshaped China's mathematics landscape and pushed forward the reform of China's mathematical education.

S.-T. Yau High School Science Award

*The S.-T. Yau High School Science Award was initiated in 2008 by Professor Shing-Tung Yau.
Hosted by Tsinghua University and organized by YMSC,
it is also recognized by China's Ministry of Education.*

The contest, available to global high school students, covers Mathematics, Physics, Chemistry, Biology, Computer Science, and Economic and Financial Modeling. Rather than traditional exams with standardized answers, students are required to submit original research reports and work in teams. Over the decade, 20,000+ teams from thirty Chinese provinces and regions, as well as overseas areas including North America and Singapore have participated. Based on the careful reviews of 450+ international scientists, approximately 1,000 students from nearly 600 teams have been awarded. More than half of the award-winning high school students have gained admission to world-renowned universities, including Tsinghua University, Peking University, Harvard University, Massachusetts Institute of Technology (MIT), Yale University, and Princeton University. Many have gone on to pursue academic research at these institutions.



S.-T. Yau High School Science Award (Noether Award)

In order to nurture female mathematicians and encourage more girls to devote themselves to the study of mathematics, YMSC has organized the S.-T. Yau High School Girls' Mathematics Contest (Noether Award) annually since 2021. The contest is open to female secondary school students worldwide.

The competition has been successively hosted by Tsinghua University High School, Hangzhou No. 2 High School, the Experimental High School Attached to Beijing Normal University and Beijing 101 Middle School. To date, the contest has attracted nearly 2,000 female students from around the world, identifying many outstanding young female mathematicians. Many recipients of gold, silver, and bronze awards have chosen to continue their mathematical studies at Qiuzhen College of Tsinghua University. In 2025, the contest was officially integrated into the framework of the S.-T. Yau High School Science Award.

Huang Xiaowei, Secretary of the Leading Party Members' Group, Vice President and First Member of the Secretariat of the All-China Women's Federation, expressed her hope that students would keep their motherland in mind, maintain their passion and persistence in mathematics, and contribute their youthful energy to advancing the China's modernization and national rejuvenation.

Olympic champion and table tennis Grand Slam winner Deng Yaping believes that gender differences are insignificant, emphasizing that success primarily stems from confidence and determination to excel. She stated, "Young women possess equal capacity to master mathematics, just as China's female athletes have attained remarkable achievements internationally. As more women participate, we will not only 'hold up half the sky' but may well surpass it."



S.-T. Yau College Student Mathematics Contest



The S.-T. Yau College Student Mathematics Contest was initiated by Professor Shing-Tung Yau in 2010. It comprehensively examines college students' basic knowledge and skills in mathematics and includes tests on six subjects: Geometry and Topology, Algebra and Number Theory, Probability and Statistics, Applied, and Computational Mathematics, Analysis and Partial Differential Equations, and Mathematical Physics. The exams are comparable in scope and difficulty to graduate qualifying examinations of the first-class international universities. Since its establishment, more than 32,000 college students in mainland China, Hong Kong, and Taiwan have taken part in the competition. It has played an important role in cultivating Chinese mathematical talents and has become an important reference for the discovery and selection of young mathematical talents and graduate students in mathematics and related disciplines at well-known universities throughout the world.

Affiliated Institutions



Department of Mathematical Sciences, Tsinghua University

The Department of Mathematical Sciences at Tsinghua University was founded in

1927

Many of China's early mathematicians, such as Qinglai Xiong and Wuzhi Yang, once taught here. In its long history, it has cultivated many world-class mathematicians, including Pao-Lu Hsu, Luogeng Hua, and Shiing-Shen Chern. The department now covers a wide range of mathematical subjects, with comprehensive bachelor's, master's, doctoral, and postdoctoral programs. It has 61 faculty members currently.

Major research areas include
Algebraic Geometry, Number Theory, Representation Theory, Differential Geometry and Geometric Analysis, Dynamical Systems and Fractal Geometry, Nonlinear Analysis and Differential Equations, Mathematical Physics, Computational Mathematics, Operations Research, Probability Theory and Statistics, Financial Mathematics, and Interdisciplinary Mathematics.

Beijing Institute of Mathematical Sciences and Applications

The Beijing Institute of Mathematical Sciences and Applications (BIMSA) was founded on June 12, 2020. Jointly established by the Beijing Municipal People’s Government and Tsinghua University. BIMSA is committed to strategic and fundamental research in all areas of mathematics, the frontiers of physics, computer science, finance, and other cross-disciplinary fields. Its research focus is 75% on Applied Mathematics and 25% on Pure Mathematics.

Over the six years since its establishment, the Institute has offered 850+ public courses, held 160+ conferences including the International Congress of Basic Science



and hosted 5,000+ lectures. It now has 200+ full-time researchers, including 80+ international scholars, who account for approximately 40% of the research staff from around 25 countries and regions. According to the 2025 “World’s Top 2% Scientists” list by Stanford University and Elsevier, 16 BIMSA scholars are included.

Tsinghua Sanya International Mathematics Forum (TSIMF)

The Tsinghua Sanya International Mathematics Forum (TSIMF) was initiated and proposed by Professor Shing-Tung Yau. With support from Tsinghua University and the Sanya City Government, TSIMF aims to develop an exchange platform for mathematical talents from China, Asia, and around the world. It hopes to provide a favorable environment for creative research and scientific breakthroughs in mathematics and other disciplines. Located on Tsinghua Road, Tianya District of Sanya, Hainan Province, it is Asia's first high-level academic conference center.

After more than a decade of development, TSIMF has held more than 3,000 seminars and conferences, covering Pure Mathematics, Applied Mathematics, Statistics,



Theoretical Physics, Applied Physics, as well as other major cross-disciplinary fields. Many distinguished scholars from top international institutions have visited here, including three Nobel Prize Laureates and ten Fields Medalists.

Global Partnerships

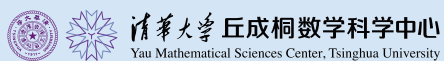
To date, YMSC has established Memoranda of Understanding (MoUs) with departments at over 30 of the world's leading universities and research institutions, including Harvard University, Stanford University, Caltech, the University of Oxford, the University of Cambridge, Imperial College London, and the University of Southern Denmark.

In 2022, Tsinghua University and Imperial College London launched a partnership in algebraic geometry through the signing of a Memorandum of Understanding (MoU). This significant academic initiative is jointly led by distinguished mathematicians from both institutions: Fields Medalist Professor Caucher Birkar from Tsinghua University, alongside Imperial College's renowned scholars Professor Richard Thomas, recipient of the Oswald Veblen Prize in Geometry, and Professor Paolo Cascini, winner of the Moore Research Article Award.



The agreement supports a broad range of academic collaboration, including regular faculty and student exchanges, as well as joint postdoctoral training initiatives. This strategic partnership aims to enhance Tsinghua University's global presence in mathematical research and education, while fostering a vibrant, collaborative research environment between the two world-class institutions.





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