

News in Asia Pacific Region

News from Australia

Conference in Honour of Cheryl Praeger's 70th Birthday

The Third International Conference on Group Actions and Transitive Graphs was held at SUST Shenzhen, China, 12–14 October 2018, in honour of Cheryl Praeger's 70th birthday.

The Sydney Mathematical Research Institute

On 12 November 2018, the University of Sydney officially launched a new “flagship initiative”, the Sydney Mathematical Research Institute (SMRI), with Professor Geordie Williamson as Director and Anthony Henderson as Executive Director. The webpage is <https://sydney.edu.au/research/centres/mathematicalresearch-institute.html>.

This launch followed one of the most successful and rapid funding drives in Australian mathematical history, led by Professor Jacqui Ramagge (the Head of School of Mathematics and Statistics, as well as being the current President of AustMS), which secured \$6.5 million in donations in less than a year to establish SMRI.

The need for research institutes in Australia comparable to the well-known institutes overseas (MSRI, Isaac Newton Institute, PIMS, Oberwolfach, etc.) has long been felt, and was highlighted in the Australian Academy of Science's Decadal Plan. The mathematical sciences in Australia: A vision for 2025. Over recent years a national framework has begun to take a clearer shape, with various organisations offering different aspects of those overseas institutes' functions: for example, the themed special years run by the Mathematical Sciences Institute at ANU, the graduate-level summer and winter schools run by AMSI, the intensive research programs and workshops run by MATRIX.

What will SMRI add to this framework? The simplest way to answer that is to point to the main overseas template, the Max Planck Institute for Mathematics in Bonn. Like MPIM, SMRI aims to be a hub for visiting

researchers from other countries, and to run events and public outreach programs connected to research in the mathematical sciences. Wherever possible SMRI will act in concert with other institutes, avoiding unnecessary duplication and competition, to help bring about the greatest benefit for the discipline nationally.

Awards and Other Achievements

Australian National University

- Dr. Anthony Licata was awarded an ARC Future Fellowship in Round 1 of 2018.
- ANU alumnus Allan Sly is one of the 25 recipients of the 2018 MacArthur Fellows Program, a grant that according to the foundation ‘celebrates exceptional creativity and significant accomplishment with the promise of important future advances and the potential to facilitate subsequent creative work’. The MacArthur Fellowship is a ‘no strings attached’ award in support of people, not projects. Each fellowship comes with a stipend of \$625,000 to the recipient.

Professor Allan Sly is a mathematician and probability theorist resolving long-standing open problems in statistical physics and theoretical computer science. A former student at ANU, Professor Sly received a B.Sc. and M.Phil. (2006) from the Australian National University and is currently a professor at Princeton University.

Sly's accomplishments include important findings pertaining to the threshold for recovering clusters in the sparse stochastic block model; pathbreaking work on cutoff in Markov chains; and the discovery of a key to constructing embeddings of random sequences into random sequences.

University of New England

- Professor Yihong Du was named the Field Leader in Mathematical Analysis by The Australian's research magazine, which announced a list of Australia's Research Leaders in The Australian newspaper on 27 September 2018.

University of New South Wales

- Professor Chris Tisdell has been elected a Fellow of the Royal Society of NSW.

University of Southern Queensland

• Dr. Ravinesh Deo, from School of Agricultural, Computational and Environmental Science, is the winner of 2018 Australia–China Young Scientist Exchange Program. This is a joint governmental initiative of the Australian Department of Industry, Innovation and Science and Chinese Ministry of Science and Technology, supported by Australia–China Science and Research Fund. It provides exposure to higher order issues outside scientific/technical specialty, and science and technology policy and best practice research management. Dr. Deo will travel to the Chinese Academy of Science, Northwest Normal University and Peking University in Beijing to undertake a two-week leadership development program: meetings, seminars, workshop and symposia with Chinese partners in academia and industry.

- Dr. Ravinesh Deo, from School of Agricultural, Computational and Environmental Sciences was awarded a USD 90,000 grant from the Northwest Institute of Eco-Environment and Resources on ‘Integration and application of water resources technology in northwest area’. The project has established a collaborative research agreement between University of Southern Queensland and the Chinese Academy of Sciences and will fund research training programs (PhD) to develop artificial intelligence tools for water science, drought management and water security.

University of Sydney

- Adrienne Jenner received the Tempe Mann Travelling Scholarship awarded by the Australian Federation of Graduate Women NSW.
- Nalini Joshi was awarded the 2018 Eureka Prize for Outstanding Mentor of Young Researchers.
- Anne Thomas has been awarded one of the University of Sydney’s Brown Fellowships for her project on ‘Large scale geometry of Coxeter groups’.

University of Western Australia

- Assoc/Prof Serena Dipierro won an Italian INdAM Starting grant ‘PDEs, free boundaries, nonlocal equations and applications’, hosted by the University of Milan.
- Professor Enrico Valdinoci is now Primary Coordinator Contact of the Marie Skłodowska-Curie Horizon 2020 Fellowship ‘Nonlocal Phenomena’ of Maria Medina. He was also appointed Chief Editor of two international journals (Mathematics in Engineering and Nonlinear Analysis).

News from Bangladesh**OWSD–Elsevier Foundation Awards**

A mathematician from Bangladesh was among the winners of the 2018 OWSD–Elsevier Foundation Awards for Early-Career Women Scientists in the Developing World.

Launched in 2010 by the Elsevier Foundation, the awardees must have made a demonstrable impact on the research environment both at a regional and international level and have often overcome great challenges to achieve research excellence.

“These scientists are living proof that, if given the opportunities and support, women all over the developing world can become leaders in their field. I salute them all and commend them for their commitment to their fields of study and to the improvement of the lives of men, women and children in their communities. They serve as role models for all

young girls and women aspiring to achieve success in their fields,” said Professor Jennifer Thomson, President of the Organisation for Women in Science for the Developing World (OWSD).

Dr. Hasibun Naher, of BRAC University, Bangladesh, received the award for her work in nonlinear partial differential equations. Naher’s significant academic contributions to this field include her most recent work on tsunami simulation and her research on travelling waves.

“This prestigious award makes me more confident that I will reach my goals, by doing research in various fields in collaboration with international scientists and researchers from developed countries,” said Naher. “Since my childhood I have always thought about how to motivate female students in STEM to help them have prosperous lives in developing countries. I hope this award helps me to fulfill my dream.”

The other four recipients of the award include Dr. Witri Wahyu Lestari of Sebelas Maret University, Indonesia; Dr. Germaine Djuidje Kenmoe of the University of Yaounde in Cameroon; Dr. Silvia González Pérez of Universidad Técnica Particular de Loja in Ecuador (Latin America and the Caribbean Region); and Dr. Dawn Iona Fox of the University of Guyana.

“From tsunami simulation to improving energy efficiency and the quality of drinking water, these scientists are actively tackling some of the biggest challenges facing their communities,” added Dr. Ylann Schemm, Director of the Elsevier Foundation. “The Elsevier Foundation is proud to partner with OWSD and AAAS in celebrating the successes of these women, persevering in the face of often acute resource and gender-related challenges.”

The awards are part of a seven-year partnership between OWSD and the Elsevier Foundation. OWSD chairs a panel of distinguished scientists to select the winners, and the Elsevier Foundation supports a cash prize for each winner of US\$5,000 and an all-expenses-paid trip to attend the 2018 American Association for the Advancement of Science (AAAS) Annual Meeting, in Austin, Texas, on 15–19 February 2018.

News from China

Xiong Bin Awarded 2018 Paul Erdős Award

Professor Xiong Bin at the East China Normal University was awarded the 2018 Paul Erdős Award. The other two recipients are David Monk (United Kingdom) and Carlos Gustavo Tamm de Araujo Moreira (Brazil).

The Paul Erdős Award, named after Paul Erdős, is given by the World Federation of National Mathematics Competitions. It is established to recognise contributions of mathematicians who have played a significant role in the development of mathematical challenges at the national or international level and which have been a stimulus for the enrichment of mathematics learning. The awards have been given in two-year periods since 1996.

Each recipient of the award is selected by the Executive and Advisory Committee of the World Federation of National Mathematics Competitions (WFNMC) on the recommendation of the WFNMC Awards Subcommittee.

Paul Erdős (1913–1996)

Paul Erdős, born in 1913 in Hungary, was an indefatigable traveller, disseminating mathematics challenges to researchers in many countries of the world. He authored or co-authored 1500 articles and books and collaborated with more mathematicians than anyone in history.

Xiong Bin

Professor Bin XIONG of China succeeded Zhongu Qiu, a former Erdős Award winner, in the daunting task of overseeing the well-being of mathematics competitions in China. Great strides have been made in the past 20 years, and much of it is due to his effort.

Starting from 2004, Prof. Xiong was responsible for organising the national competition, the national olympiad and the selection process for the IMO team. The number of students involved is extremely large, and the amount of work is proportionally heavy. Nevertheless, he is able to meet the expectation of everyone. He is also active in many regional competitions within China. Thus he has built up a wide and very cordial network of fellow workers in this field.



Maria Falk de Losada (left), Chair of the Awards Committee, Prof. Xiong Bin, and Alexander Soifer, President of WFNMC

Over the past twenty years, Prof. Xiong has steadily encouraged and trained young teachers for participation in mathematics competitions. In this task, he has visited many parts of this vast country. His graduate students are also enthusiastic about this task, and will step into his shoes in due course.

Prof. Xiong is particularly strong in his personal relation with individual students, and offers pointed assistance and advice to them. The responses from the students are uniformly positive. Thus he is the ideal choice as the leader of the Chinese IMO team, a task which he fulfilled many times. He is also very prolific in publications, and has played a leadership role in the development of competition mathematics in China.

Prof. Xiong was born in Shanghai in July 1963. He graduated from the Department of Mathematics of the East China Normal University in 1984 and obtained a Master of Mathematics degree from the same institution in 1991. Currently he is a professor of mathematics at the East China Normal University. His main research areas are problem solving and gifted education, with emphasis on methodology of mathematics, theory of mathematics problem solving, mathematics education, and the identification and nurturing of talented students. He has published more than 100 papers and

published or edited more than 150 books, both within China and abroad. He is a council member of the Chinese Mathematical Society, an associate editor of Mathematics Teaching, and a member of the editorial boards of Bulletin of Mathematics and High-school Mathematics.

Prof. Xiong has been in charge of the National High School Mathematics Competition in China since 2008. This is the first step which leads to the Chinese Mathematical Olympiad. The workload is extremely heavy since over sixty thousand students participate in the contest each year. He was invited to join the Chinese Mathematical Olympiad Committee in 2002, and served on the Problem Subcommittee from 2005 to 2015. Dating back to 1988, he had been a trainer for the Chinese National Team for the International Mathematical Olympiad, and served as leader in 2005, 2008, 2010, 2011, 2012, 2013, 2015 and 2016. In these eight years, forty of the forty-eight team members received gold medals.

He has been active in the other mathematics competitions as well. Since 1988, he has visited different regions of China in order to promote mathematics competitions. Since 2010, he has organised the annual National Research Seminar on Proposing Competition

Problems. He had served several times on the Problem Subcommittees of the Mathematical Olympiad for Western China and the Chinese Mathematics Olympiad for Girls. In 2006 and 2007, he was in charge of the participation of junior high school and elementary school students of China in the International Mathematics Competition. Since 1988, he has been in charge of mathematics competitions in Shanghai for junior and senior high school students.

Beyond competitions, Prof. Xiong serves as the director of the Shanghai Key-point Laboratory on the Theory and Practice of Mathematics and an instructor of the Shanghai Academy for the Preparation of Key-Point Teachers. He is very active in various Shanghai programs of gifted education.

Some of Prof. Xiong's publications include:

- Bin Xiong, Graph Theory, 2009, World Scientific Publishing Company.
- Peng Yee Lee and Bin Xiong, Mathematical Olympiad in China, Vol. 1, 2006, Vol. 2, 2009, Vol. 3, 2013, World Scientific Publishing Company.
- Bin Xiong and Su Yong, Methods and Techniques for Proving Inequalities, 2016, World Scientific Publishing Company.
- Tingyan Tian and Bin Xiong, Studies on the Isoperimetric Inequality in Convex Polygon and Related Conclusions, Octagon Mathematical Magazine, Vol. 12, No. 2A, October 2004, pp 672–679.
- Simon Chua, Andy Liu and Bin Xiong, World Youth Mathematics Intercity Competition, Mathematics Competitions, Vol. 21, Number 1, 2008, pp 10–31.
- Zhigang Feng and Bin Xiong, A Brief Introduction to Mathematical Competitions in Shanghai, Asian Pacific Mathematics Newsletter, Vol. 1, No. 3, August 2011.

News from Japan

MSJ Spring Meeting 2018

The MSJ (Mathematical Society of Japan) Spring Meeting 2018 was held during March 18–21 at The University of Tokyo.

The MSJ Spring and Autumn Meetings are the most important activities of the MSJ. They help the members exchange scholarly information and play a crucial role in the development of mathematics in Japan.

Two plenary talks were delivered at the meeting:

- “Study of discrete groups and ergodic theory” by Dr. Yoshikata Kida, Associate Professor of Graduate School of Mathematical Sciences, The University of Tokyo
- “Collapsing Riemannian manifolds with boundary” by Dr. Takao Yamaguchi, Professor of Kyoto University

Dr. Kida's talk was the award talk for The MSJ Spring Prize.

In addition to the above talks, the meeting also held 7 featured invited lectures. Moreover, the 10 Research Sections organised 32 invited talks and 470 short communications of research papers.

The MSJ Spring Prize winner for 2018 was announced and awarded to Dr. Yoshikata Kida at the meeting. The prize presentation ceremony was held on March 19. The MSJ Algebra Prizes, The MSJ Outstanding Paper Prizes and The MSJ Prizes for Excellent Applied Mathematicians for 2018 were also presented at the meeting.

The MSJ and The University of Tokyo jointly organised Open Lectures for Citizens on March 17. The lectures were aimed at non-professional audience. The titles and the speakers are the following.

- “Mathematics for exploring human visual perception and its applications — Harmonic analysis, visual illusions, image processing and art —” by Dr. Hitoshi Arai of Graduate School of Mathematical Sciences, The University of Tokyo

- “Thurston’s 3-manifold theory” by Dr. Sadayoshi Kojima, Professor of Tokyo Institute of Technology.

The 2018 MSJ Spring Prize

The 2018 MSJ Spring Prize was awarded to Dr. Yoshikata Kida, Associate Professor of Graduate School of Mathematical Sciences, The University of Tokyo, for outstanding contributions to the study of discrete groups and ergodic theory. The MSJ Autumn Prize and The MSJ Spring Prize are the most prestigious prizes awarded by the MSJ to its members. See also the 2018 MSJ Autumn Prize winner below.



The 2018 MSJ Algebra Prizes

The 2018 MSJ Algebra Prizes were awarded to Dr. Takayuki Hibi of Graduate School of Information Science and Technology, Osaka University, for his work on computational commutative algebra and combinatorics; to Dr. Satoshi Naito of Tokyo Institute of Technology for his research on representation theory of quantum affine algebras; and to Dr. Kanetomo Sato of Chuo University for his work on a new cohomology theory for arithmetic schemes and its applications.

The 2018 MSJ Outstanding Paper Prizes

The 2018 MSJ Outstanding Paper Prizes were awarded to:

- Dr. Jonathan Bennett of University of Birmingham, England, Dr. Neal Bez of Saitama University, and Dr. Chris Jeavons and Er. Nikolaos Pattakos, both of University of Birmingham, for their paper “On sharp bilinear Strichartz estimates of Ozawa-Tsutsumi type” (*J. Math. Soc. Japan*, Vol. 69, No. 2 (2017) 459–476);
- Dr. Toshiyuki Tanisaki of Osaka City University for his paper “Modules over quantized coordinate algebras and PBW-bases” (*J. Math. Soc. Japan*, Vol. 69, No. 3 (2017) 1105–1156);
- Dr. Yasunori Maekawa of Tohoku University and Dr. Jonas Sauer of Technische Universität Darmstadt, Germany, for their paper “Maximal regularity of the time-periodic Stokes operator on unbounded and bounded domains” (*J. Math. Soc. Japan*, Vol. 69, No. 4 (2017) 1403–1429).

The MSJ Outstanding Paper Prize is awarded to the authors of most outstanding articles published in *JMSJ* (the Journal of the Mathematical Society of Japan).

The 2016 MSJ Prizes for Excellent Applied Mathematicians

The MSJ Prizes for Excellent Applied Mathematicians were awarded to:

- Dr. Hirotake Kurihara of Kitakyushu College for his work on the Euclidean distortion of distance-regular graphs;
- Dr. Naoto Nakano of Kyoto University for his work entitled “Data-driven dynamical reconstruction: Mathematical analysis for delay and derivative embeddings”;
- Dr. Ayuki Sekisaka of Meiji University for his research on motion of spots on the curved surface;
- Dr. Shin’ya Uchiumi of Waseda University on his studies of numerical computation of high-Reynolds-number flows by a pressure-stabilised FEM with higher-order elements.

Takashi Kumagai Received 2017 Humboldt Research Award

Dr. Takashi Kumagai of Kyoto University received 2017 Humboldt Research Award. The award is granted by Alexander von Humboldt Foundation in recognition of a researcher’s entire achievements to date to academics whose fundamental discoveries, new theories, or insights have had a significant impact on their own discipline and who are expected to continue producing cutting-edge achievements in the future.

MSJ Autumn Meeting 2018

The MSJ Autumn Meeting 2018 was held during September 24–27 at Okayama University, Okayama City, Okayama.

The meeting held two plenary talks:

- “Studies on stochastic dynamics of infinite particle systems with long range interaction and its rigidity” by Dr. Hirofumi Osada, Professor of Kyushu University

- “Mathematics of the QFT, by the QFT, for the QFT” by Dr. Yuji Tachikawa, Associate Professor of Kavli Institute for Physics and Mathematics of the Universe, The University of Tokyo

Dr. Osada’s talk was the award talk for The MSJ Autumn Prize.

The meeting also organised 7 featured invited lectures. Moreover, the 10 Research Sections organised 32 invited talks and 432 short communications of research papers.

The MSJ Autumn Prize winner for 2018 was announced and awarded to Dr. Hirofumi Osada at the meeting. The prize presentation ceremony was held on September 25. The 2018 MSJ Takebe Katahiro Prizes and the 2018 MSJ Takebe Katahiro Prizes for Encouragement of Young Researchers were also presented at the meeting.

The MSJ and Okayama University jointly organised Open Lectures for Citizens on September 23. The lectures were aimed at non-professional audience. The titles and the speakers are the following.

- “Mathematical modeling of nonlinear phenomena” by Dr. Masaharu Nagayama, Professor of Hokkaido University
- “Math for CG” by Dr. Hiroyuki Ochiai, Professor of Institute of Mathematics for Industry, Kyushu University.

The 2018 MSJ Autumn Prize

The 2018 MSJ Autumn Prize was awarded to Dr. Hirofumi Osada, Professor of Kyushu University, for his outstanding contributions to studies on stochastic dynamics of infinite particle systems with long range interaction and its rigidity.



The 2018 MSJ Analysis Prizes

The 2018 MSJ Analysis Prizes were awarded to:

- Dr. Shuichi Kawashima of Waseda University for his work on stability analysis of systems of nonlinear partial differential equations with dissipative structure;

- Dr. Norio Konno of Yokohama National University for his research on mathematics of quantum walks and its applications;
- Dr. Akihiko Miyachi of Tokyo Woman’s Christian University for his study of Hardy spaces and boundedness for Fourier multiplier operators and pseudodifferential operators.

The 2018 MSJ Geometry Prizes

The 2018 MSJ Geometry Prizes were awarded to:

- Dr. Shouhei Honda of Tohoku University for his work on geometric analysis on convergence of Riemannian manifolds;
- Dr. Yuji Odaka of Kyoto University for his study on K-stability and moduli theory.

The 2018 MSJ Takebe Katahiro Prizes

The 2018 MSJ Takebe Katahiro Prizes were awarded to

- Dr. Yohei Fujishima of Shizuoka University for his research on blow-up set of solutions for the semilinear heat equation;
- Dr. Johannes Jaerisch of Shimane University for his research on ergodic theory and its intensive applications to various fields;
- Masaya Maeda for his work on asymptotic stability of solitary waves for nonlinear Schrödinger equations;
- Dr. Kiwamu Watanabe of Saitama University for his studies on the Campana-Peternell conjecture on Fano manifolds with nef tangent bundle.

The 2018 MSJ Takebe Katahiro Prizes for Encouragement of Young Researchers

The 2018 MSJ Takebe Katahiro Prizes for Encouragement of Young Researchers were awarded to:

- Dr. Hiraku Atobe of The University of Tokyo for his studies on automorphic representations and related local and global theta correspondences;
- Dr. Takayuki Koike of Osaka City University for his study of function theory on a neighbourhood of a complex submanifold and its application to geometry;

- Dr. Shuta Nakajima of Kyoto University for his research on first passage percolation;
- Dr. Yusuke Nakamura of The University of Tokyo for his studies of minimal log discrepancy and the minimal model theory over a finite field;
- Dr. Genki Omori of Saitama University for his work on the group structure of the mapping class group of a surface and its subgroups;
- Dr. Jin Takahashi of Tokyo Institute of Technology for his study on moving singularities for parabolic equations.

The Takebe Prizes for the Encouragement of Young Researchers are awarded to young mathematicians who are deemed to have begun promising careers in research by obtaining significant results.

Masaki Kashiwara was awarded Chern Medal Award 2018 and 2018 Kyoto Prize

Dr. Masaki Kashiwara, Professor Emeritus of Research Institute of Mathematical Sciences, Kyoto University, received Chern Medal Award 2018 for his outstanding and foundational contributions to algebraic analysis and representation theory sustained over a period of almost 50 years. He also received 2018 Kyoto Prize for his outstanding contributions to a broad spectrum of modern mathematics: Advancement of D-module theory from its foundation.

The Chern Medal Award is given to an individual whose accomplishments warrant the highest level of recognition for outstanding achievements in the field of mathematics. The Kyoto Prize is an international award to honour those who have contributed significantly to the scientific, cultural, and spiritual betterment of mankind.

MSJ Spring Meeting 2019

The MSJ Spring meeting 2019 will be held at Tokyo Institute of Technology, Tokyo, during March 17–20, 2019. The chair of organising committee is Dr. Hiroshige Shiga and the chair of executive committee is Dr. Nobuhiro Honda. The official website of the meeting is at <http://mathsoc.jp/en/meeting/titech19mar/>.

News from New Zealand

2018 Rutherford Medal Awarded to Rod Downey



Professor Rod Downey of the Victoria University of Wellington has been awarded the 2018 Rutherford Medal.

The Medal is for an exceptional contribution to the advancement and promotion of knowledge of science and technology for the benefit of New Zealand society and is the highest honour awarded by Royal Society Te Apārangi. The citation for Rod reads:

To Rodney Graham Downey for his pre-eminent revolutionary research into computability, including development of the theory of parameterised complexity and the algorithmic study of randomness.

Rod is an internationally recognised logician known for his research into computability — how can mathematical processes be algorithmically implemented either in theory or practice — and the study of randomness.

One of Rod's specialities is recursion (computability) theory. He founded the field of algorithm design called parameterised complexity with co-author Michael Fellows Hon FRSNZ, which has shown that many apparently intractable computations become feasible once fixed values are given to certain parameters, such as the amount of input data to be used or the size of object to be computed. This subject has now developed into an important new branch of theoretical computer science, which has its own international conferences, books and special issues of journals, with applications to many areas.

It has been applied to numerous fields and projects that are as diverse as studying deafness in aboriginal children in Australia, the effects of radiation on DNA,

reconstructing the ‘tree of life’ (phylogenetic analysis), studying the evolution of European languages, efficient design of distributing donated food to charities, information-based medicine and many others.

Rod also initiated a comprehensive development in the field of algorithmic randomness, publishing a large research publication in 2010 on the topic that gives a unifying treatment of several related but historically separate approaches to the question of what makes a sequence random. Studying randomness can help determine complex questions like ‘is this piece of DNA similar to this other one?’ or ‘did this composer plagiarise another composer?’.

MINZ 2018

The 2018 Mathematics in Industry New Zealand (MINZ) study group was held at the Auckland University of Technology from 25–29 June, and Directors Hyuck Chung and Professor Jiling Cao were delighted with the week, saying it was an unqualified success with stimulating discussions and great progress made on every front.

Over eighty mathematics academics, students, teachers and scientists descended upon AUT to tackle six problems from industry and to hear the keynote address delivered by Professor Troy Farrell, Head of Mathematical Sciences at Queensland University of Technology in Australia. Challenges to be solved came from Fonterra, Transpower, Methanex, the International Cable Protection Committee, Sanford, and Fisher and Paykel. During the week the meeting broke into separate groups which engaged in free-form brainstorming of each of the challenges, subjecting the industry representatives to intensive interrogation as ideas were raised and assessed in an effort to solve the challenges on offer.

Data analytical techniques were used to explore the database for repair of faults in the network of trans-oceanic optical fibre cables that connect the modern world; the mouth-feel of dairy products was considered in the scientific context; corrosion in heat exchangers was analysed with sophisticated statistical models tailored to the application; the logistics of mussel farming were investigated with a view to improving the processes and helping decision-making; the delicate matter of washing clothes without overly distressing them was delved into; and the implications of

increasingly popular new technology in solar power generation with local storage at the household level for the national New Zealand power grid were investigated.

On the final day, each group presented its results to the entire MINZ gathering and to the industry representatives, who responded to each presentation with a short comment on what they thought of the process. All representatives thanked their groups for the progress made during the week, and many commented on the benefit they had already derived from a fresh approach to their challenge. Methanex have followed up the study week with the establishment of two summer intern positions in applied mathematics.

MINZ study groups, initiated by Professor Graeme Wake at Massey in Auckland in 2015, have been held annually thanks to logistic and administrative support from KiwiNet, and operate as a special activity of the ANZIAM New Zealand Branch. ANZIAM itself is a Division of the Australian Mathematical Society, and enjoys a close relationship with the New Zealand Mathematical Society. These study groups are an excellent example of outreach between universities, research groups, business and industry in New Zealand, and the interactions between academics and industry at study groups often lead to further collaborative interactions and innovations.

News from Vietnam

I. Major Upcoming Events

1. 2020 Call for Research Proposals

Vietnam Institute for Advanced Study in Mathematics (VIASM) was established in 2010. Our vision is to become a center of excellence in research in mathematics and its application, with good working environment. We offer support for working library and internet access. Our goal is to attract Vietnamese and international mathematicians for cooperation with local colleagues. The Scientific Director is Professor Ngo Bao Chau (Fields Medal 2010).

VIASM is pleased to invite research groups or individuals for research stays in 2020 with the duration of 2 months and longer. We invite applications of Vietnamese researchers in mathematics, mathematics application, mathematics in technology, economics and society.

We expect to support the following categories of application:

- *Distinguished Professor*: With outstanding research achievements.
- *Research Professor*: For candidates with a rank of associate professor with a good research excellence.
- *Senior Researcher*: For candidates with PhD and established research records.
- *Researcher*: For candidates with a PhD and some publications in good international journals.
- *Young Researcher*: For applicants under 35 years old.

In addition, in 2020 we expect to offer 5 post-doctoral positions for one-year stay with possible extension. Candidates with PhD received after 1.1.2014 will be invited to apply. A priority will be given to applicants who pursue research collaboration with Vietnamese mathematicians.

Research fellows would receive stipends during the stay.

For more information, please visit: <http://viasm.edu.vn/en/information-for-applicants/call-for-applicants/detail/invites-research-fellowship-2020>

2. The International Conference on Applied Probability and Statistics (CAPS 2019)

Date: April 2–6, 2019

Venue/Location: VIASM, Hanoi

Sponsors: VIASM; VNU Hanoi University of Science; Vietnam Society for Application of Mathematics (VSAM); Academy of Policy and Development; Institute of Mathematics, Vietnam Academy of Sciences and Technology; University of Economics Ho Chi Minh City.

Purpose: The International Conference on Applied Probability and Statistics (CAPS 2019) will be organised on April 3–6, 2019 in Hanoi to provide participants with opportunities to promote new applications of probability and statistics to real-world problems. CAPS 2019 will also offer a unique opportunity for statisticians and data scientists outside Vietnam to exchange ideas and explore opportunities for collaboration with local researchers, practitioners, and graduate students. A

large portion of the audience will be the graduate students looking for their research directions. CAPS 2019 follows similar pattern of international conferences on Applied Probability and Statistics in Vietnam in 1999, 2008 and 2013. CAPS 2019 is mainly sponsored by the Vietnam Institute for Advanced Study in Mathematics of the Vietnamese Ministry of Education and Training. A one-day pre-conference meeting will also be organized on April 2, 2019 at the Academy of Policy and Development of the Vietnamese Ministry of Planning and Investment with emphasis on official statistics. As Vietnam has emerged as one of Asia's most popular tourist destinations, CAPS 2019 also provides an excursion around Hanoi and a tour to Ha Long Bay.

Keynote Speakers:

Jiro Akahori (Ritsumeikan, Japan);
 Naomi Altman (PSU, USA);
 Ho Tu Bao (VIASM, Vietnam);
 John Borkowski (MSU, USA);
 Noel Cressie (OUW, Australia);
 Nguyen T. Hung (NMSU, USA & CMU, Thailand);
 Nguyen Ky Nam (VIASM, Vietnam);
 Nabendu Pal (ULL, USA);
 Christine Thomas-Agnan (TSE, France);
 Jean Yves-Dauxois (INSA, France).

Website conference: <https://caps2019.viasm.edu.vn/>

3. Vietnam–USA Joint Mathematical Meeting

Date: June 10–13, 2019

Venue/Location: Quy Nhon, Vietnam

Organisers: Vietnam Mathematical Society (VMS); American Mathematical Society (AMS); Quy Nhon University, Vietnam Institute for Advanced Study in Mathematics (VIASM)

Purpose: The Vietnam–USA Joint Mathematical Meeting will be organised under the patronage of the American Mathematical Society and the Vietnam Mathematical Society in the city of Quy Nhon, Vietnam. Quy Nhon is a coastal city in the center of Vietnam marked with history, home of cherished vestiges of the Cham civilisation and in the vicinity of the birthplace of Quang Trung, a national hero who lived and died in the historical period when Vietnam as a country was attaining its current shape. May this joint meeting be a forum for a rich exchange of ideas,

an occasion to strengthen existing cooperations between our mathematical communities and a catalyst for new ideas, new cooperations.

Website conference: <http://vnus2019.viasm.edu.vn/>

4. *The 7th Asian Quantitative Finance Conference (AQFC)*

Date: July 2–5, 2019

Venue/Location: VIASM, Hanoi

Organisers:

Le Minh Ha (VIASM);
Huyên Pham (University Paris Diderot, France);
Xiang Yu (Hong Kong Polytechnic University);
Chao Zhou (National University of Singapore).

Purpose: The conference aims to feature the latest developments in the field and promote research on quantitative finance in Asia. It also hopes to provide an occasion for interaction and cooperation among researchers within Asia and those elsewhere working in the specific fields.

Website conference: <http://viasm.edu.vn/hdkh/aqfc>

II. Past Events

1. *VIASM New Board of Directors*

On February 2018, the Minister of Education and Training appointed the 2018–2021 Board of Directors of VIASM. Prof. Ngo Bao Chau (Fields Medal, 2010) remains as the Scientific Director. Le Minh Ha,

associate professor at VNU University of Science, has been appointed as the new Managing Director for VIASM. He succeeds Prof. Nguyen Huu Du who has held the position since October 2013. Dr. Trinh Thi Thuy Giang, former head of department of personnel office at VNU University of Science, has been named as Deputy Director for VIASM.



VIASM New and Former Board of Directors

2. *The Opening Ceremony for Data Science Lab*

The Opening Ceremony for Data Science Lab (DSLab) of VIASM took place with the participation of more than a hundred participants in the afternoon of April 13, 2018. The VIASM–DSLab aims to become a hub

for data scientists in Vietnam to exchange information and support. It will focus on educating and training data scientists, carrying out R&D projects on economic and social problems, promoting cooperation among academia-industry-state.



The Opening Ceremony for Data Science Lab (DSLab)

3. VIASM School on Number Theory (June 18–24, 2018) and Conference “Arithmetic and Geometry of Local and Global Fields” (June 25–29, 2018)

The program “Arithmetic and Geometry of Local and Global Fields” was held at VIASM from June 1 to August 31, 2018. It was organised by Bruno Anglès (University of Caen Normandy, France), Ngô Đắc Tuân (lead, CNRS and University of Caen Normandy, France) and Phùng Hồ Hải (Institute of Mathematics, Vietnam).

Arithmetic Geometry is a very active area of mathematics with important and deep connections to various areas such as algebraic geometry, number theory, and Lie theory. The goal of this program was not only to give the leading experts from different horizons further opportunities to work together, but also to give young people a chance to learn about recent advances in these topics.

As part of the project, VIASM school on Number theory took place in Hanoi from June 18–24, 2018. About 40 students from Vietnam and neighbouring countries such as the Philippines, Indonesia, Malaysia, Singapore and Thailand were selected as applicants.

Four courses were given by leading experts in Europe. These courses not only introduced the basic tools, but also presented an overview of recent developments of different topics in Number theory so that young mathematicians could achieve major breakthroughs in the near future.

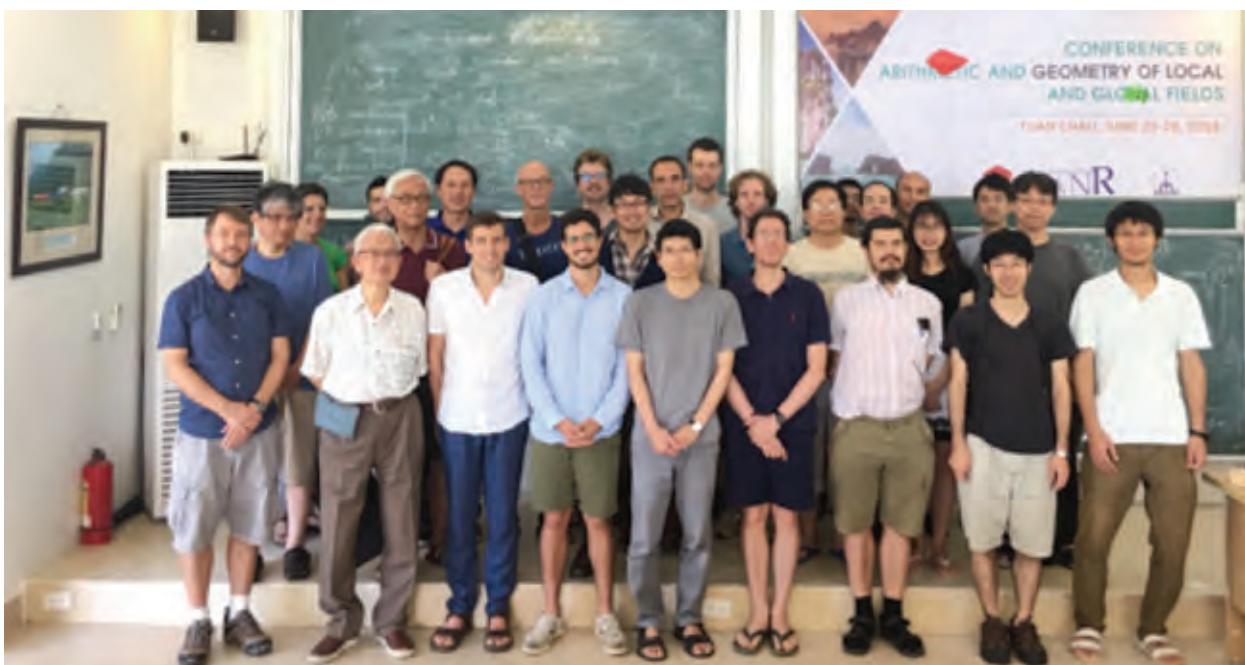
Following the summer school, the conference “Arithmetic and Geometry of Local and Global Fields” was held in Tuân Châu, Quảng Ninh province from June 25–29, 2018.

The conference brought together leading experts to work on different topics on Number theory and to report the latest developments, especially on Drinfeld modular forms, special values of Goss L-functions, Shimura varieties, and arithmetic D-modules. We expect that the conference will boost the interaction and collaboration among mathematicians from Vietnam, other Asian countries, and colleagues from Europe.

Previous activities had received financial support from VIASM, Institute of Mathematics (Vietnam), ERC Starting Grant TOSSIBERG, Institut Henri Poincaré, Foundation Compositio Mathematica, ANR PerCoLaTor and CNRS (GDR Structuration de la théorie des nombres).



Participants of VIASM school on Number Theory (June 18–24, 2018)



Participants of the conference "Arithmetic and Geometry of Local and Global Fields" (June 25–29, 2018)

4. The 9th Vietnam Mathematical Congress, 2018

The 9th VMS Congress took place at the Telecommunications University in Nha Trang City. There were nearly 800 delegates who were young scientists and researchers in the Vietnam mathematical community from universities and institutes. On August 14, 2018, the Opening Ceremony of the 9th Vietnam Mathematical Congress took place throughout the country.

Vietnam Mathematical Congress is the largest scientific event in the country happening once every 5 years. This year, the 9th Vietnam Mathematical Congress was organised during August 14–18, 2018 and it was divided into 2 parts: Scientific Conference and Congress of the Vietnam Mathematical Society (VMS).

The Scientific Conference comprised of 8 parallel sessions: Algebra/Number Theory/Geometry/

Topology, Analysis, Differential Equations and Dynamical Systems, Discrete Mathematics and Mathematical Foundations of Computer Science, Optimisation and Scientific Computing, Probability/Statistics, Mathematical Applications, and Mathematics Education and History of Mathematics. There were 5–7 parallel lectures for every session, 7 plenary lectures, and almost 350 contributed lectures about different mathematical topics. These lectures presented research achievements of individuals and research groups of Vietnamese mathematicians on theory and application

of mathematics. Lectures were selected based on several criteria: quality, variety, lecturers with remarkable research results.

The Congress of the Vietnam Mathematical Society was held on August 15, 2018 to summarise the activities of the VMS in the last five years from 2013–2018, and set out the course of actions for the term 2018–2023. The Congress also voted the VMS Executive Committee for the term 2018–2023 including 19 scientists from all universities and institutes in the country.



Participants of the Workshop



Prof Nguyen Hoai Minh (École Polytechnique Fédérale de Lausanne) giving invited talk at the plenary session

5. Math Open Day 2018 “Mathematics Decodes the Chaotic World”

On November 4, 2018, the Vietnam Institute for Advanced Study in Mathematics (VIASM) and the Hanoi-Amsterdam High School for the Gifted co-organised the Math Open Day 2018 — MOD 2018 with the theme “Mathematics Decodes the Chaotic World”. The occasion was a great success, attracting nearly 2,000 attendees. This year’s MOD 2018 included a wide variety of activities and exhibitions for students of all ages, parents, educators, scientists and all those who are interested in mathematics and science.

The Math Open Day 2018 welcomed the presence of key leaders in the country. Prominent professors in Mathematics, the Heads of Gifted high schools and universities, and more than 250 scientists nationwide also participated in the event.

The main focus of this year’s Math Open Day 2018 is on the broad applications of Mathematics, especially the increasing and essential role of Mathematics in the Digital Age. Because of the challenges in maintaining Big Data security, the breakthrough of the emergence of AI, the exploration of natural phenomenon, the development within a chaotic world, applied Mathematics plays an utterly important role in these scientific and technological advances.

In December 10, 2018, together with the VNU University of Science, Ho Chi Minh City and the University of Saigon, VIASM organised similar Math Open Day event for the first time in Ho Chi Minh city. It is hoped that this will become an annual event in Ho Chi Minh City.



Students enjoy participating in the mathematical scientific experiments



Participants for Math Open Day 2018