Canadian Mathematical Society
Annual Report

2018

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As of December 31, 2018

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President's Report

Prof. Mark Lewis (Alberta)

In 2018 the Canadian Mathematical Society (CMS) had an eventful year. One of our biggest recent developments was hiring our new Executive Director, Dr. Termeh Kousha, who started in September 2018. Termeh came to us from the University of Ottawa, where she has an outstanding record of teaching and education. From September to December 2018, Termeh worked with our outgoing Executive Director, Dr. Graham Wright. Those few months were an incredible time of productivity and cooperation, so I conclude that two Executive Directors is better than one!

We are lucky to have had our outgoing Executive Director, Graham, over the last three years. He formally retired from this position at the end of December 2018. He initially served as Executive Director from 1979 to 2009. During that time, he was tireless in his efforts to support the society through committees and scientific meetings. He oversaw many changes, helping to build the society's executive office in Ottawa and develop web-based services. Over the years, Graham contributed to almost all the society's operations, including serving as managing editor of many of the CMS's publications and working as organizer of major mathematics competitions, including the 1995 International Mathematical Olympiad in Toronto. The CMS simply would not have its impact on the professional mathematical community, nor its wide range of programs in research, publication, and mathematics education, without the extraordinary contributions of Graham Wright.

Graham entered his first retirement in 2009, looking forward to a relaxing life of watching the Ottawa Senators and trips to warm places. Little did he know what the future had in store for him. In September 2015, we had a sudden opening in the position of Executive Director and the need for a steady hand at the helm. At the request of all involved, and true to form, Graham selflessly agreed to help out until such a time as we could find a new Executive Director. Graham has now entered his second retirement from

the CMS. However, I very much hope that he can visit from time to time, assuming he can drag himself away from whatever beach or golf course he is relaxing on!

I am also happy to share news with you regarding a new initiative in collaboration with MITACS. This is the Mitacs Innovation Lecture series, starting in December 2020 in conjunction with the CMS 2020 Winter Meeting in Montreal Quebec. This annual lecture has the goal of illuminating the mathematical underpinnings of significant innovative developments that are impacting our world and the way we relate to it. It is intended to be very broad, of interest to the public as well as to mathematical scientists. We are very grateful for the support MITACS is providing for this important endeavour.

We have now completed a major shift in the way that the two CMS journals are managed. The Society's journals, the *Journal of Mathematics* and the *Canadian Mathematical Bulletin*, have shifted from being self-published to being published by Cambridge University Press. While we have a long history of successful self-publishing, this shift to Cambridge is providing new opportunities, including new expertise and worldwide advertising and promotion for these two flagship journals. We retain ownership of the journals and look forward to a long and productive relationship with Cambridge University Press.

Another exciting development with respect to publications is news regarding our internationally respected problem solving journal, Crux Mathematicorum (CRUX). With the support of the Intact Foundation, the Canadian Mathematical Society (CMS) made CRUX available as a free online publication as of January 2019. This initiative means every high school teacher and student in Canada and globally will be able to access CRUX as a free resource.

We have been fortunate to have two excellent CMS meetings in the last year, the summer meeting in Fredericton, and the winter meeting in Vancouver. Many special thanks are owed to the scientific directors, session organizers, committee members, volunteers and staff who made these meetings successful.

Awards presented at the 2018 summer meeting in Fredericton include: the Krieger-Nelson Prize for outstanding research by a female mathematician to Megumi Harada (McMaster), the Jeffery-Williams Prize for outstanding contributions to mathematical research to Gordon Slade (UBC), and the Excellence in Teaching Award to Gary MacGillivray (UVic).

The Winter Meeting Banquet also provided an opportunity to recognize outstanding research, teaching, and service in mathematics across Canada by presenting awards. Nassif Ghoussoub (UBC) was named the recipient of the CRM-Fields-PIMS Prize, the Doctoral Prize to Thomas Hutchcroft (Cambridge), the G. de B. Robinson Award for publication of excellent papers to Patrick Ingram (York) and Anastasia Stavrova (St. Petersburgh State), the Adrien Pouliot Award for mathematics education to the Centre for Education in Mathematics and Computation (CEMC), the Coxeter James Prize for young mathematical researchers to Maksym Radziwill (McGill), the Graham Wright Award for Distinguished Service to Keith Taylor (Dalhousie), and the David Borwein Distinguished Career Award to Anthony To-Ming Lau (Alberta).

Another area of change this year has been with respect to developing a new CMS Fellows Program. The Fellows Program was instituted to recognize mathematicians who have made very significant contributions to the profession and to the Canadian Mathematical Society. The Fellowship recognizes CMS members who have made excellent contributions to mathematical research, teaching, or exposition and by having distinguished themselves in serving Canada's mathematical community. It was a great personal pleasure to help recognize 49 Inaugural CMS Fellows at the Winter Meeting Banquet in Vancouver this December.

It was also an exciting year in mathematics competitions. The CMS entered its first-ever team to compete in the European Girls Mathematical Olympiad (EGMO). The team returned from Italy, medals in hand. EGMO Math Team Canada earned one Silver medal, two Bronze medals and one Honourable Mention, a great start to what we anticipate will be a yearly event. In other news, Math Team Canada 2018 returned from the 59th

International Mathematical Olympiad (IMO) in Cluj, Romania with five Silver medals and one Bronze medal. Math Team Canada placed 16th out of 107 countries.

As is evident from the list of prizes above at all levels, Canada has a strong and vibrant mathematics community. Part of the strength of our Canadian mathematics community comes from its diversity. Indeed, one of the roles of the CMS is to foster diversity at all levels and to help provide an environment where all can thrive and feel comfortable. To this end, the CMS has developed new policy statements for diversity, for child care, and a code of conduct. These policies are all either approved or at the final stage of approval, prior to implementation. In some cases, implementation will mean real changes for the better, for example, by providing more comprehensive child care resources at meetings.

I wish you all a pleasant year ahead and hope it will be a great one for mathematics in Canada. Together we can build and strengthen the Canadian mathematical community.

Graham P. Wright receives special recognition for his contributions to CMS from the President Mark Lewis.

President Mark Lewis with the new CMS Executive Director Dr. Termeh Kousha

Prizes & Awards

Jeffery-Williams Prize
Prof. Gordon Slade (UBC)

Professor Slade has done outstanding work in rigorous statistical mechanics, motivated by the physics of critical phenomena. With his collaborators, Slade has developed two major mathematical tools for statistical mechanics.

The first of these is the lace expansion. This was introduced by David Brydges and Tom Spencer in the mid 1980s to study self-avoiding walks, but it is the work of Slade and his co-authors which has turned it into a systematic calculus which can handle a wide variety of models above their critical dimension dc. These models include the self-avoiding walk, percolation, oriented percolation, branched polymers, random graphs, and the lattice $|\varphi|4$ spin model (a variant of the Ising model).

More recently, with David Brydges and their jointly supervised student Roland Bauerschmidt, Slade has developed a rigorous formalism for the Renormalization Group, a method which allows mathematicians to also resolve these models at the critical dimension (which in most cases is dc = 4).

The behaviour varies with the spatial dimension d; above the critical dimension dc they are believed to exhibit "mean field" behaviour. The case d = 2, long recognized by physicists to be special due to the existence of "exact solutions", has seen great progress since the turn of the century with the emergence of Schrarnm-Loewner Evolution. For d = 3 almost nothing is known rigorously. Slade and his co-authors have successfully analyzed most of these models in four and more dimensions and computed their critical behaviour, thus resolving a number of hard and central problems which had long resisted the efforts of some of the best probabilists and mathematical physicists in the world.

Gordon Slade received his Masters from the University of Toronto in 1979, followed by his doctorate from the University of British Columbia in 1984. He has been at the University of British Columbia since 1999. Slade is a fellow of the American Mathematical Society, the Institute of Mathematical Statistics, the Fields Institute for Research in Mathematical Sciences, the Royal Society of Canada, and the Royal Society (London). Dr. Slade is the recipient of the Prize of the Institut Henri Poincaré, the CRM-Fields-PIMS Prize, and the 1995 CMS Coxeter-James Prize.

Math Camps

Each summer, CMS Math Camps provide students with an interest in mathematics with a unique and unforgettable experience. The camps take place in universities and CEGEPs across Canada and range from day camps to week long events. Students who attend the camps leave with new friends, new ideas, and a new outlook on mathematics. CMS Math camps are a great opportunity to enhance skills and knowledge, gain a new perspective on mathematics and make new friends with similar interests. In 2018, the CMS offered 20 Regional Camps, 3 National Camps and 2 Specialty Camps.

Krieger-Nelson Prize
Prof. Megumi Harada (McMaster)

Professor Megumi Harada (McMaster) has been named the recipient of the 2018 Krieger-Nelson Prize for her research on Newton-Okounkov bodies, Hessenberg varieties, and their relationships to symplectic geometry, combinatorics, and equivariant topology, among others. Harada's papers have been published in many of the top journals in the field, such as Inventiones Mathematica, Advances in Mathematics, Geometry and Topology, Journal of Symplectic Geometry, and Transactions of the American Mathematical Society.

Professor Harada's Inventiones paper "Integrable systems, toric degenerations and Okounkov bodies" with Kaveh has attracted much attention, as it provides a new connection between algebraic geometry and the symplectic geometry of integrable systems. For example, it gives a new tool for studying the symplectic topology of fairly general smooth projective varieties. More broadly, Newton-Okounkov bodies provide convex-geometric models for projective varieties, thus paving the way for combinatorial methods for analyzing their geometry. One basic example is the Newton-Okounkov body of a toric variety, which coincides with its usual Newton polytope.

In recent years Harada has additionally made several significant contributions to the study of the global structure and equivariant cohomology rings of Hessenberg varieties using tools she helped to develop.

Harada has earned many research awards, including the Canada Research Chair (Tier II), sponsored by the Government of Canada (2013-2018); the Japan Society for the Promotion of Science (JSPS) Invitation Fellowship (Long-Term) for Research in Japan, 2014; the Ruth Michler Prize and Fellowship, the Association for Women in Mathematics, the Cornell University 2013; the Early Researcher Award, the Ontario Ministry of Research and Innovation, 2008-2013; and the University Faculty Award, Natural Sciences and Engineering Research Council (Canada), 2007-2012.

Harada earned her Bachelor's degree at Harvard University (summa cum laude) in 1996, and her doctorate from the University of California at Berkeley in 2003. Following her graduation, Harada was appointed a Postdoctoral Research Fellow (Academic) at the University of Toronto, Department of Mathematics until 2006 and she is now a Professor in the Department of Mathematics at McMaster University.

Coxeter-James Prize
Prof. Maksym Radziwill (McGill)

Professor Radziwill works in analytic number theory, focusing on the distribution of prime numbers, multiplicative functions and related objects. His list of publications includes his recent work with Matomaki on multiplicative functions in short intervals (Annals of Math, 2016), which establishes that if one picks at random a short string of consecutive integers then most of the time the multiplicative structure of the integers in the short interval resembles the multiplicative structure of the integers in the "long" interval starting at 1. In more technical terms, he showed that most of the time short averages of bounded multiplicative functions are close to long averages. This result goes beyond the capability of the Riemann Hypothesis. It led to the resolution of the Erdos discrepancy problem by Terence Tao, and to the first progress on Chowla's conjecture. Chowla's conjecture in its general form postulates a lack of correlation between the multiplicative structure of consecutive integers. As such its resolution is a necessary step on the path to the existence of twin primes. The work with Matomaki had also several other consequences: for instance it establishes the existence of smooth numbers (i.e integers composed of only small prime factors) between every C consecutive squares, where C is some large constant. This is related to the running time of Lenstra's elliptic curve factoring algorithm. This work with Matomaki also opened the door for further progress on Sarnak's conjecture on the lack of correlation of the Liouville function with sequences of topological entropy zero.

Radziwill also authored a paper with Soundararajan on "Moments and distribution of central values of quadratic twists of elliptic curves", (Inventiones Math., 2015). This paper contains remarkable theorems on moments of quadratic twists of L functions of elliptic curves, with application to the distribution of sizes of Tate-Shafarevich groups. The techniques developed in this paper led to a better understanding of the distributional aspects of L-functions. For instance it led to a vastly simplified proof of Selberg's central limit theorem for the Riemann zeta function and to the first distributional results resembling Selberg's central limit theorem for discrete families of L-functions.

Radziwill has earned a number of honours and awards, namely the SASTRA Ramanujan Prize in 2016 with Matomaki, his work with Matomaki was the object of a Seminaire Bourbaki in 2016, in 2017 he was awarded the Sloan Fellowship. Radziwill was invited as a speaker at the International Mathematical Congress at Rio de Janeiro in 2018. He is currently a Canada Research Chair II at McGill University until 2021.

Radziwill earned his doctorate degree from Stanford University in 2013 (Advisor: Kannan Soundararajan). From 2014 to 2016 Radziwill served as the Hill Assistant Professor at Rutgers University and a member of the Institute for Advanced Study at Princeton University from 2013 to 2014. Currently, Professor Radziwill is an Assistant Professor at McGill University.

Doctoral Prize
Dr. Thomas Hutchcroft (Cambridge)

Dr. Thomas Hutchcroft is regarded as one of the top recent Ph.D.s in probability theory in the world. His thesis is an impressive collection of results, most of which are published in leading journals, such as Inventiones Mathematicae, Geometrical and Functional Analysis and Annals of Probability. In particular, together with Asaf Nachmias, Hutchcroft has made remarkable progress in the study of uniform spanning trees on unimodular and planar graphs, answering several open questions raised in a celebrated paper by Benjamini, Lyons, Peres and Schramm. In a solo paper, Dr. Hutchcroft proved that critical percolation almost surely has only finite clusters on all transitive graphs of exponential growth. One of the central open problems in percolation is to prove this property for any transitive graph of at least quadratic growth, and Dr. Hutchcroft's work is an important step in this direction. In his research, Hutchcroft often uses tools from different branches of mathematics, including complex analysis, differential geometry and topology. For example, his paper with Omer Angel, Asaf Nachmias and Gourab Ray combined hyperbolic triangulations, circle packings, random walks and mass transport in an ingenious way.

After completing his undergraduate and MMath studies (the third and the most difficult part of the famous Mathematical Tripos) at the University of Cambridge, Hutchcroft moved to the University of British Columbia, where under the supervision of Omer Angel and Asaf Nachmias, he obtained his Ph.D. in 2017. Earlier this year, Dr. Hutchcroft was awarded a Governor General's Gold Medal by the University of British Columbia for is doctoral work. During several summers, he has also been a research intern at the Microsoft Research Theory Group, mentored by Alexander Holroyd and Yuval Peres.

Adrien Pouliot Award
Centre for Education in Mathematics and Computing (CEMC)

Based at the University of Waterloo, the CEMC is one of Canada's largest outreach organizations in mathematics and computer science. The focus of the center is to increase interest, enjoyment, confidence, and ability in mathematics and computer science among learners and educators in Canada and internationally. Each year, the CEMC reaches hundreds of thousands through its contests and website, and tens of thousands through its face-to-face workshops.

According to Serge D'Alessio, Professor and former Associate Dean at the Faculty of Mathematics, "The CEMC is the organization best suited to continue to create the next generations of leaders in mathematics and computer science, to help to support the mathematical foundations crucial to the next generations of leaders in every other scientific discipline, and to give all Canadians a better appreciation for mathematics and computer science."

Today, the CEMC's team consists of approximately 40 people, including faculty and staff, as well as mid-career and retired teachers working on specific CEMC projects. The CEMC also works hand-in-hand with hundreds of volunteers who help create and mark mathematics contests, and review online materials, as well as other initiatives. The people that make up the CEMC's team have driven the CEMC's long-standing contributions to mathematics and computer science education, have worked to create and deliver the highest quality resources and activities, and have fostered strong relationships with teachers and students across Canada.

Excellence in Teaching Award
Prof. Gary MacGillivray (Victoria)

MacGillivray's boundless energy, his love of teaching, his strong commitment and dedication to the success of his students have earned him the respect of his colleagues. His colleagues describe him as a great and effective teacher who is truly involved in his community and by his students as master of explaining hard topics and a very approachable professor.

"Dr. MacGillivray has an ability to positively impact people's lives all around him. His love and passion for Mathematics and Mathematical education is clearly contagious, influencing many students and colleagues alike," says CMS Education Committee Chair Joseph Khoury. "Gary's students say he gives remarkably clear lecturers, he motivates and inspires them to think hard, makes difficult concepts easy and fun, and cares deeply about them," says professor Jane Ye from the Department of Mathematics and Statistics at the University of Victoria.

MacGillivray's style of teaching, his dedication and commitment to his students' success have certainly left a long lasting impact on the path many of them take. As a result of following his inspiring courses, some of his students followed his footsteps and became teachers themselves; and some have been inspired to change their University major to Mathematics or mathematical education. He also seems to be among the few Canadian mathematicians who realized early in their career the value of exposing undergraduate students to the value of research in Mathematics. MacGillivray has worked tirelessly on supervising and guiding research projects for many undergraduate students throughout his career.

Professor MacGillivray's dedication and commitment to students' success did not go unnoticed by his colleagues and students. He was awarded the University of Victoria Faculty of Science Teaching award in 2010 and the Harry Hickman Alumni Award for Excellence in Teaching in 2011.

Gary MacGillivray earned a Combined Honours BSc in Computer Science and Mathematics from University of Victoria in 1985, and a Masters in Science in Mathematics from University of Victoria in 1986 (supervisor: Ernie Cockayne, area: graph theory). MacGillivray earned his doctorate in Mathematics from Simon Fraser in 1990 (supervisor: Pavol Hell, areas: algorithms and complexity). His entire education was half mathematics and half computer science, and the same is true of his research to this day. He held positions at Capilano College and the University of Regina before arriving at the University of Victoria in 1992 where he has been a faculty member ever since. In 2003 McGillivray was promoted to Professor.

During his time at the University of Victoria Professor MacGillivray has continually been the organizer of the Discrete Math Seminar, and the coordinator of the Logic and Foundations course.

Over the course of his career, Professor MacGillivray has supervised 48 undergraduate research projects, and 39 graduate students or post-docs. He has written more than 100 papers, more than half of which are collaborations with students or post-docs.

G. de B. Robinson Award

The G. de B. Robinson is usually given to one outstanding paper in the Canadian Journal of Mathematics or the Canadian Mathematical Bulletin. In special circumstances, the committee can offer more awards (up to 3 per year). This year, the selection committee had several outstanding papers to assess and eventually decided to offer two awards.

Prof. Patrick Ingram (York)

Professor Ingram is being recognized for his paper "Rigidity and height bounds for certain post-critically finite endomorphisms of PN" (Canad. J. Math. 68 (2016), no. 3, 625-654).

The high relevance of Ingram's paper comes from being the first published work describing the arithmetic of post-critically finite self-maps for higher dimensional spaces. This paper opens new avenues for research, due to the importance of the dynamical behaviour of the critical locus for endomorphisms of PN. For example, the role post-critically finite rational functions play within the appropriate moduli space of dynamical systems is similar to that played by the CM points on the affine j-line for elliptic curves.

In 2006 Ingram completed his PhD at University of British Columbia under the supervision of Michael Bennett. After being an NSERC Postdoctoral Fellow at the University of Toronto (2006-2008) and a Brookfield Research Professor at the University of Waterloo (2008-2011), Ingram became an Assistant Professor at Colorado State University. In 2016 Patrick returned to Canada, where he is currently an Assistant Professor at York University.

Dr. Anastasia Stavrova (St. Petersburg State)

Dr. Anastasia Stavrova is being recognized for her paper paper "Non-stable K1-functors for Multiloop Groups" (Canad. J. Math. 68 (2016), no. 1, 150-178).

Dr. Stavrova's paper is a fundamental contribution to group theory and Lie theory, which provides a deep understanding of the automorphism groups of multiloop Lie algebras in higher nullity. Stavrova invented a striking technique of doubling of variables, which should have further applications in the theory of loop group schemes, which in particular applies to extended affine Lie algebras.

Dr. Stavrova received her doctorate from St Petersburg State University in 2009, under the supervision of Nikolai Vavilov, and the same year was awarded the "Young Mathematician" prize of St. Petersburg Mathematical Society. In 2010-2012 she worked as a researcher at the Ludwig-Maximilian University of Munich and at the Duisburg-Essen University. In 2013, Stavrova held a J.E. Marsden Postdoctoral Fellowship at the Fields Institute, and in 2016, she won the "Young Russian Mathematics" scholarship from the Skolkovo Institute of Science and Technology and the Independent University of Moscow. At present, Anastasia is a senior researcher at the P.L. Chebyshev Laboratory at St. Petersburg State University. Her main research interests are algebraic groups, algebraic K-theory and non-commutative algebra.

David Borwein Distinguished Career Award, Prof. Anthony To-Ming Lau (Alberta)
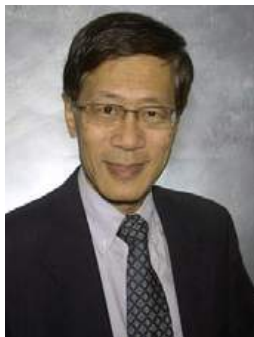
Awarded every four years, the David Borwein Distinguished Career Award is, by definition, reserved for those individuals who have made exceptional, broad, and continued contributions to Canadian mathematics. Over nearly five decades, Professor Lau has done precisely this, on a truly remarkable number of levels. From research central, to the development of abstract harmonic analysis in Canada and internationally, to teaching of such a high calibre that it has been recognized with a 3M Teaching Award, and award-winning service.

Lau has published more than 150 research articles and monographs, and served as Department Chair (Mathematical and Statistical Sciences) at the University of Alberta, as well as CMS President (2008 – 2010).

Distinguished Award Selection Committee Chair, Dr. Michael Bennett noted that Dr. Lau epitomized the spirit of the award, stating "perhaps Dr. Lau's greatest contribution to Canadian mathematics lies in his mentorship and supervision of more than two dozen Ph.D. students, many of whom have themselves gone on to distinguished careers as scholars, educators and leaders, attaining prominence in Canada, the US and beyond".

Graham Wright Award for Distinguished Service
Dr. Keith Taylor (Dalhousie)

Praised by his colleagues as being an 'excellent role model for a well-rounded mathematician', Dr. Taylor's career, spanning more than four decades, has truly exemplified what this award represents, not just because of his excellent record of research and mentorship, but also through his academic work as Associate Dean, Dean and Associate Vice President at two Universities and through years of fundamental service to the CMS, including a term as President (2012-2014). Indeed, just to list his CMS committee work and appointments takes a full page on his vitae!

Past Chair of the CMS Distinguished Awards Selection Committee Dr. Michael Bennett (UBC) asserts "Taylor`s real contribution to Canadian mathematics goes far beyond a few lines on his CV. It lies more in his continued striving for educational excellence, in award-winning teaching, and through remarkable and continuing commitment to outreach."

Dr. Taylor`s later outreach work focusses on developing pathways to mathematical literacy for underrepresented groups in Saskatchewan and Nova Scotia, and consistently supporting and championing disadvantaged communities.

Among his many honours are the Master Teacher Award from the University of Saskatchewan in 2001 where he also championed the "The Math Readiness Project" aimed at bridging the gap between high school and college/university mathematics, especially for students in remote areas. In 1996, Taylor was awarded the President's Educational Site Award for the MRC web course at the University of Saskatchewan. The following year, Dr. Taylor received the Student Union Teaching Excellence Award.

CMS Fellows

The CMS congratulates the Inaugural Class of Fellows

In 2018, the Fellows Program was instituted to recognize mathematicians who have made very significant contributions to the profession and to the Canadian Mathematical Society. The Fellowship recognizes CMS members who have made excellent contributions to mathematical research, teaching, or exposition; as well as having distinguished themselves in service to Canada's mathematical community.

Induction to the Inaugural Class of Fellows was based upon CMS members who have been a recipient of a CMS prize or award for outstanding contributions for research, education, exposition or service to the Canadian mathematical community or to the CMS. The CMS Fellows Selection Committee will be responsible for the approval of future CMS Fellows.

Edward Barbeau	Nassif Ghoussoub	Sherman D. Riemenschneider
Martin Barlow	Shawn Godin	David L. Rodgers
Michael Bennett	Edgar Goodaire	Christiane Rousseau
Edward Bierstone	Bernard Hodgson	Yvan Saint-Aubin
George Bluman	Jacques Hurtubise	Thomas Salisbury
David Borwein	John Frederick Jardine	Bill Sands
David Boyd	Joseph Khoury	Gregory G. Smith
Lia Bronsard	Peter Lancaster	Catherine Sulem
H.E.A (Eddy) Campbell	Anthony To-Ming Lau	Srinivasa Swaminathan
Kenneth R. Davidson	Mark A. Lewis	Peter D. Taylor
Donald Dawson	Miroslav Lovric	Keith F. Taylor
Gerda deVries	Ram P. Murty	James G. Timourian
Michel Delfour	V. Kumar Murty	J. Harley Weston
Michael Doob	Richard Nowakowski	Robert E. Woodrow
Malgorzata Dubiel	Renzo A. Piccinini	Graham P. Wright
Peter Fillmore	David G. Poole	
Ailana Fraser	Malabika Pramanik	

Meetings

2018 CMS Summer Meeting

Some 300 mathematicians were welcomed to the University of New Brunswick for the 2018 CMS Summer Meeting from June 1st to 4th, 2018.

Participants attended 20 scientific sessions, six plenary lectures, three prize lectures and one public lecture over the course of the meeting. The plenary lecture speakers were Jason Bell (Waterloo); Lia Bronsard (McMaster); Nassif Ghoussoub (UBC); Allen Knutson (Cornell); Mark Lewis (Alberta); and Carl Pomerance (Dartmouth College). Patrick Reynolds (New Brunswick) gave the public lecture entitled "Why Math?".

During the CMS Annual General Meeting, Michael Bennett's (UBC) two-year term as President of the CMS ended and Mark Lewis (Alberta) took up the reigns as President.

On Sunday June 3rd, the CMS Awards Banquet recognized the 2018 CMS Award winners: They are: Professor Gary MacGillivray (Victoria) recipient of the Excellence in Teaching Award; Professor Gordon Slade (UBC) recipient of the Jeffery-Williams Prize; and Professor Megumi Harada (McMaster) recipient of the Krieger-Nelson Prize. The Student Poster Awards were also presented at the banquet: AARMS Prize: Sudan Xing (Memorial); CMS President's Prize: Navaneeth Mohan (Western); and CMS Student Committee Prize: Jonathan Godin (Montréal). Part of the festivities of the banquet included acknowledging three milestone birthdays: Renzo Piccinini, David Rodgers and Yvette Roberts.

The CMS would like to acknowledge the financial support from the University of New Brunswick particularly Co-Scientific Directors, Colin Ingalls (Carleton formerly at New Brunswick) and Alexandre Girouard (Laval) and the staff at the University of New Brunswick, especially Barry Monson for their part in making the 2018 CMS Summer Meeting such a success.

International Congress on Mathematical Physics (ICMP) 2018

After 35 years, the International Congress on Mathematical Physics (ICMP) returned to North America in 2018, which also marked the first time that Canada hosted the congress.

The ICMP, on its three-year cycle, is the most important event of the International Association of Mathematical Physics. The XIXth ICMP took place in Montreal and, followed in recent tradition, was preceded by the Young Researchers Symposium (YRS). The YRS was held at McGill University from July 20th to 21st and the ICMP was held at the Centre Mont-Royal and McGill University from July 23rd to 28th. There were over 600 participants who attended this meeting.

ICMP featured 16 plenary lectures, 12 thematic sessions and contributed talks, exhibits, and a human rights session. ICMP also presented four prizes and featured an associated lecture given during the congress. The congress also featured 8 satellite sessions from across North America both before and after the congress.

ICMP 2018 was staged by the Local Organizing Committee Chair Vojkan Jaksic (McGill) and the CMS in collaboration with many physics and mathematics organizations, including: CRM, McGill University, PIMS, The Fields Institute, ISM, AARMS, CANSSI, BIRS, Perimeter Institute, Université de Montréal and UQAM.

2018 CMS Winter Meeting

550 mathematicians were welcomed to the Sheraton Vancouver Wall Centre for the 2018 CMS Winter meeting from December 7th to 10th.

Participants attended five plenary lectures, a public lecture, four prize lectures and more than 30 scientific sessions. The meeting opened with Professor Anthony Bonato's public lecture entitled "Dots and lines: from Trump to Harry Potter to Bitcoin" followed by a welcome reception that gave the CMS community a chance to visit and share research and catch up on what had transpired since the previous CMS meeting. Scientific sessions, plenary lectures and prize lectures filled the days leading up to the awards banquet.

On Sunday December 9th during the Awards Banquet, the Inaugural Class of CMS Fellows were given their certificates as well as a commemorative pin. The 49 Fellows were acknowledged in a media release on December 7th.

The CMS prizes and awards were also distributed during the banquet. The 2018 CMS Award winners are: The Centre for Education in Mathematics and Computing (CEMC), recipient of the Adrien Pouliot Award; Professor Maksym Radziwill (McGill) recipient of the Coxeter-James Prize; Thomas Hutchcroft (Cambridge) recipient of the Doctoral Prize; Patrick Ingram (York) and Anastasia Stavrova (St. Petersburg State) were recipients of the G. de B. Robinson Award; and Keith Taylor (Dalhousie) and Anthony To-Ming Lau (Alberta) recipients of the Graham Wright Award for Distinguished Service and the David Borwein Distinguished Career Award respectively. Dr. Nassif Ghoussoub (UBC) was named the recipient of the 2019 CRM-Fields-PIMS Prize. The Student Committee Awards were also presented at the banquet: AARMS Prize Raymond Walsh (Simon Fraser); CMS President's Prize:Weston Christopher Roda (Alberta); and CMS Student Committee Prize: Robyn Hearn (Simon Fraser).

The CMS would like to acknowledge the financial and administrative support from the University of British Columbia and Simon Fraser University. CMS would like to thank Malabika Pramanik (UBC) and Franco Saliola (UQAM), the Scientific Directors, and a huge thank you to the Scientific Organizing Committee.

Finally we would like to acknowledge the session organizers for their part in making the 2018 CMS Winter Meeting a success.

CMS Winter Meeting, Sheraton Vancouver Wall Centre

Committee Reports

Research Committee
Chair: Nantel Bergeron (York)

The CMS Research Committee oversees the research activities of the Society. This includes helping to select the scientific organizers for the summer and winter meetings, participating in the scientific organization of these meetings, playing a major role in the selection of winners for research-related prizes, and advising the Executive Committee on research related issues.

The Research Committee adjudicates a number of awards and prizes. The Coxeter-James Prize, recognizing a young mathematician who has made outstanding contributions to mathematical research, was awarded to Maksym Radziwill (McGill University). The Jeffery-Williams Prize, recognizing a mathematician who has made outstanding contributions to mathematical research, was awarded to Gordon Slade (University of British Columbia). The Krieger-Nelson Prize, recognizing outstanding research by a female mathematician, was awarded to Megumi Harada (McMaster University).

The Research Committee also appoints the members of the Doctoral Prize Selection Committee (one of whom must be a member of the Research Committee). The Doctoral Prize, recognizing outstanding performance by a doctoral student, was awarded to Thomas Hutchcroft (Ph.D. in 2017 at University of British Columbia), under the supervision of Omer Angel and Asaf Nachmias.

With the support of PIMS, Fields, CRM, and AARMS, the CMS semi-annual national meetings attracted over 800 participants. Together, the summer (UNB) and winter (UBC) meetings presented 2 public lectures, 11 plenary Lectures, more than 50 scientific sessions, encompassing more than 700 talks.

The forthcoming events includes the 2019 Summer Meeting at the University of Regina, the 2019 Winter Meeting at York University and the 2020 CMS 75th Anniversary Meeting at the University of Ottawa.

International Affairs Committee
Chair: Martin Barlow (UBC)

The International Affairs Committee acts as a liaison between the Canadian community in the Mathematical Sciences, and international organisations relating to mathematics and mathematics education. As such, the committee also includes representatives from other national organisations such as CAIMS and SSC. For the International Mathematical Union, the committee acts as the Canadian National Committee.

The committee also interacts with the National Research Council of Canada, which provides the funding for Canada's membership for International scientific organisations.

Canada has been a member of the IMU since 1932, and since 1998 has been a "group V" country, the top category. The IMU was held in Sao Paulo, in Brazil on July 29-30, 2018, just before the ICM. The Canadian delegation was Alejandro Adem (UBC), Henri Darmon (McGill), Ian Hambleton (U Toronto) and Luc Vinet (U Montreal). One member had to withdraw at the last minute due to a family emergency, but the Canadian delegation still had 5 votes for IMU ballots.

Publications Committee
Chair: Javad Mashreghi (Laval)

The year 2018 was a fruitful year for this committee on a number of issues. The most essential achievement and possibly one of the most important decisions in the history of CMS was signing an agreement with the Cambridge University Press to publish and distribute the CJM and CMB. The process was slow and achieved through numerous interviews, consultations and conference calls. In the first half of the year and respecting the legal issues of both sides, and that CMS and Cambridge reside in two different continents and thus different laws may apply, many important documents, e.g., Copy Assignment Form and License to Publish for authors were created. Moreover, appealing to a geometric figure in one of Coxeter's books, new cover pages for CJM and CMB were designed. In the second half of the year, we are mostly in the transition period to safely exchange files between the CMS Tex Office in Winnipeg and Cambridge.

On other issues, a new edition of the publication "The Canadian Mathematical Olympiad 1969-1993" to celebrate the CMO's 50th anniversary in 2018 is pursued by the Publication Office. The English version is pretty much complete. The French version will be completed in 2019. The remaining committee business are in fact some housekeeping issues. The CMS publishes two peer-reviewed research journals as well as various educational publications annually.

In 2018, the CMS published the following:

- Canadian Journal of Mathematics (Volume 70);
- Canadian Mathematical Bulletin (Volume 61);
- Crux Mathematicorum (Volume 44);
- CMS Notes (Volume 50); and
- CMS Books in Mathematics Series (3 titles).

Patrick Ingram (York) receives the G.de B. Robinson Award for his published article in CJM from Javad Mashreghi, Chair of CMS Publications Committee.

Mathematical Competitions Committee
Chair: Dorette Pronk (Dalhousie)

The Mathematical Competitions Committee (MCC) oversees the Society's involvement in mathematics contests. The Society currently sponsors and runs two competitions: the Canadian Open Mathematics Challenge (COMC) and the Canadian Mathematical Olympiad (CMO), jointly sponsored by Casualty Actuarial Society and Society of Actuaries. The MCC is also responsible for Canada's participation in the Asian Pacific Mathematics Olympiad (APMO), the European Girls Math Olympiad (EGMO) and the International Mathematical Olympiad (IMO) with its training camps, and oversees the CMS National Math Camp.

Most of the work of the MCC is done by its three subcommittees (the COMC, CMO, and IMO Committees). Further information, including press releases, on most of the items in this report can be found through the CMS Competitions web pages https://www.cms.math.ca/Competitions/ and www.cms.math.ca/MediaReleases/.

The MCC and (especially) its subcommittees have been very active, with a large number of deadlines throughout the calendar. We would like to thank all members for their enthusiasm, reliability, and hard work in making sure that everything has run smoothly. The CMS Executive Office also deserves our gratitude for their dedication and support.

The European Girls Math Olympiad

The 7th European Girls Math Olympiad was held in Florence, Italy, April 9-15, 2018. The actual contest days were April 11 and 12, with 4.5 hours to work on three problems each day, just as at the IMO. Each country sends a team of up to four students. This year was the first for Canada to send a team. The students on the team were Elnah Hessami Pilehrood (from Marc Garneau CI, Toronto), Anna Krokhine (from University of Toronto Schools, Toronto), Jingzhi Liang (from Marc Garneau CI, Toronto), and Karen Situ (from University Hill Secondary School, Vancouver). The leader was Dr. Dorette Pronk from Dalhousie University and the deputy leader was Sarah Sun from TD Bank and the University of Waterloo. We are extremely grateful to our principal sponsor, the Faculty of Mathematics at the University of Waterloo, for making this possible. The team members trained with the potential IMO students at the winter training camp and received further training from the leader and deputy leader by correspondence.

The Canadian team placed 21st out of 52 countries. The top three countries were Russia, the United States and the United Kingdom. EGMO Math team Canada came home with one silver medal, two bronze medals and one honourable mention. A Silver Medal was awarded to Elnaz Hessami Pilehrood, the Bronze Medals were awarded to Anna Krokhine and Jingzhi Liang, and the Honourable Mention was awarded to Karen Situ. The team's total score was 72 out of 252.

The first 2018 EGMO Math Team Canada proudly wearing their medals, with Deputy Leader Sarah Sun from TD Bank (far left) and Leader Dorette Pronk from Dalhousie University (far right).

The Canadian Mathematical Olympiad

Seventy-seven students wrote the 50th Canadian Mathematical Olympiad (CMO) on March 28, 2018. Two others had been invited, but did not write. Most were invited on the basis of their performance in the most recent Canadian Open Mathematics Challenge or CMO Qualifying Repêchage a set of 8 problems posted online in the first half of February. Invited participants had just one week to submit solutions. The Repêchage was assembled by a group of volunteer experts, chaired by Lino Demasi, who was helped with the grading by Mark Saaltink and Graeme Kemkes. A small number of additional invitations were made, in particular to winners of the Concours de l'Association mathématique du Québec and the Alberta High School Mathematics Competition.

The successful running of the contest is due largely to the efforts of the CMS Staff, particularly Val Kelly and Steve La Rocque. Thanks are also due to the members of the CMO Committee, who created and fine-tuned the problems, and who graded the exams.

The following students received prizes:

- **FIRST PRIZE and the CMO Cup**: Victor Rong, Marc Garneau Collegiate Institute, Toronto, ON
- **SECOND PRIZE**: Howard Halim, University of Toronto Schools, Toronto, ON
- **THIRD PRIZE**: William Zhao, Richmond Hill High School, Richmond Hill, ON

HONOURABLE MENTIONS were awarded to:

- Steven Chow, Albert Campbell C.I., Scarborough, ON;
- Andrew Dong, Centennial C. & V.I., Guelph, ON;
- Andrew Lin, University Hill S.S., Vancouver, BC;
- Victor Wang, Sir Winston Churchill S.S., Vancouver, BC;
- Scott Xu, Hon. Vincent Massey S.S., Windsor, ON; and
- Zixiang Zhou, University Heights P.S., London, ON.

INTERNATIONAL HONOURABLE MENTIONS were awarded to:

- Thomas Guo, Phillips Exeter Academy, NH, USA;
- Bill Qin, Phillips Academy, Andover, MA, USA;
- Nicholas Sun, North Central Coll, Napierville, IL, USA;
- Fred Zhanf, H W Longfellow Middle School, Falls Church, VA, USA;
- Freddie Zhao, ICAE, Troy, MI, USA; and
- Wayne Zhao, Bergen County Academies, Hackensack, NJ, USA.

A full report of the 2018 CMO, including the question paper, solutions and analysis of the marking can be found at www.cms.math.ca/Competitions/CMO.

The Society is indebted to many sponsors for the success of the CMO, particularly to its new premier sponsors, the Casual Actuarial Society and the Society of Actuaries.

The Asian Pacific Mathematics Olympiad

The 30th Asian Pacific Mathematics Olympiad (APMO) was written on March 12, 2018 in North and South America, and on March 13 in the Western Pacific and Asia, with Mexico serving as the coordinating country. Of the 23 Canadian students who wrote the four-hour competition with five problems, 10 were Canada's official participants.

- The top Canadian student was Victor Rong (Marc Garneau C.I.), who was given a Gold Award.
- Thomas Guo (Phillips Exeter Academy) and Nicholas Sun (North Central College) were given Silver Awards.
- Bronze Awards went to William Zhao (Richmond Hill H.S.), Alvin Zou (Olympic Education Centre), Howard Halim (University of Toronto Schools), and Zixiang Zhou (University Heights P.S.).
- Honourable Mentions went to Kai Sun (A.B. Lucas S.S.), Richard Kang (Dr. E.P. Scarlett School) and Freddie Zhao (ICAE).

Canada ranked 5th among 39 participating countries. Further details regarding the APMO are available through **www.cms.math.ca/Competitions/APMO/**.

International Mathematical Olympiad

The 59th International Mathematical Olympiad (IMO) took place in Cluj-Napoca, Romania, from July 3-14, 2018. The Team Leader was James Rickards of McGill University, the Deputy Leader was Calvin Deng of Princeton University, and the Deputy Leader Observer was Vincent Chan of the University of Calgary. The six high school students on the Canadian team were:

- Thomas Guo, Phillips Exeter Academy, (Exeter, NH);
- Howard Halim, University of Toronto Schools (Toronto, ON);
- Victor Rong, Marc Garneau Collegiate Institute (Toronto, ON);
- Nicholas Sun, North Central Collegiate (Napierville, IL);
- Zixiang Zhou, University Heights Public School (London, ON);
- William Zhao, Richmond Hill High School (Richmond Hill, ON).

Two students were attending school in the USA. However, all team members were Canadian citizens.

The Canadian team placed 16th out of 107 countries. The top three countries were the United States of America, Russia and China. Math team Canada came home with five silver medals and one bronze medal. Silver Medals were awarded to Thomas Guo, Howard Halim, Victor Rong, Nicholas Sun and William Zhao, a Bronze Medal was awarded to Zixian Zhou. The team's total score was 156 out of 252.

The CMS's Media Releases on the 2018 IMO can be found at https://cms.math.ca/MediaReleases/2018/IMO2018 and https://cms.math.ca/MediaReleases/2018/IMOResults.

There is also a brief report on the 2018 IMO on page 23 of the December 2018 CMS Notes.

The IMO Winter Training Camp was hosted by York University, January 3-8, 2018, and was attended by fifteen high school students (ten male and five female) from across Canada. The local organizer was Neal Madras, assisted by Ann-Marie Carless, Ada Chan, Alfred Pietrowski, Tom Salisbury, Hongmei Zhu, Suzanne Park, and the staff of Norman Bethune College at York. The program of the camp was organized by two of the Team Leaders (James Rickards and Calvin Deng), with additional trainers Alex Song, Matthew Brennan, Eddy Liu, Byung Chun, Lindsey Shorser and Sarah Sun.
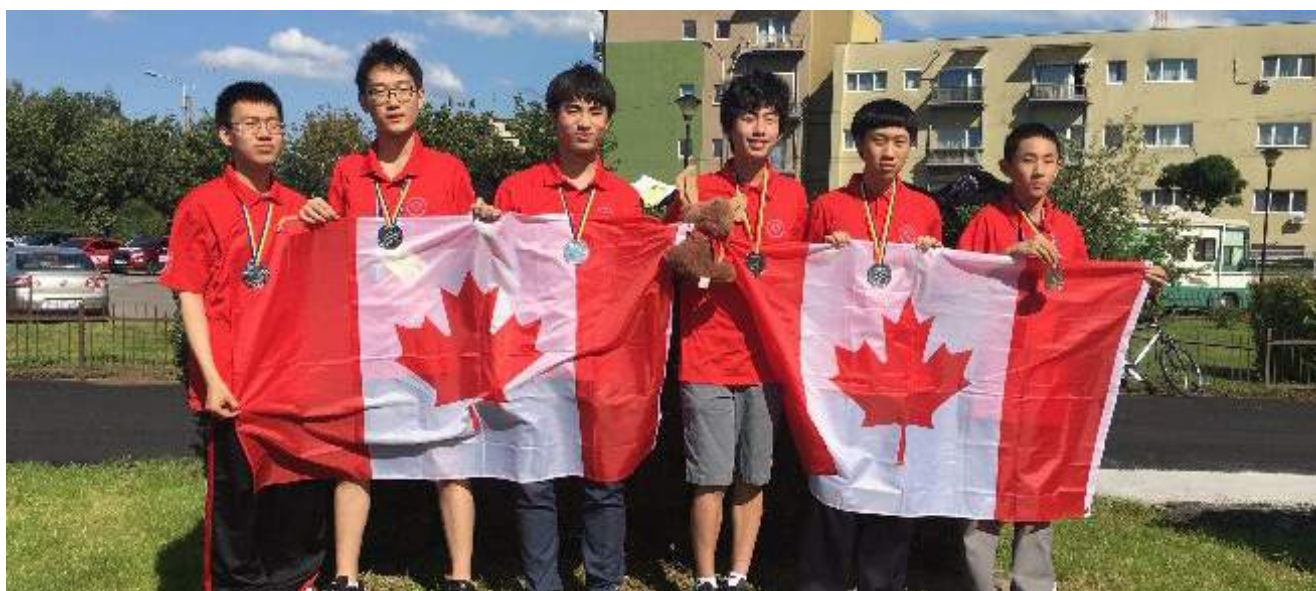
Math Team Canada 2018 proudly wearing their medals won at the 59th International Mathematical Olympiad (IMO).
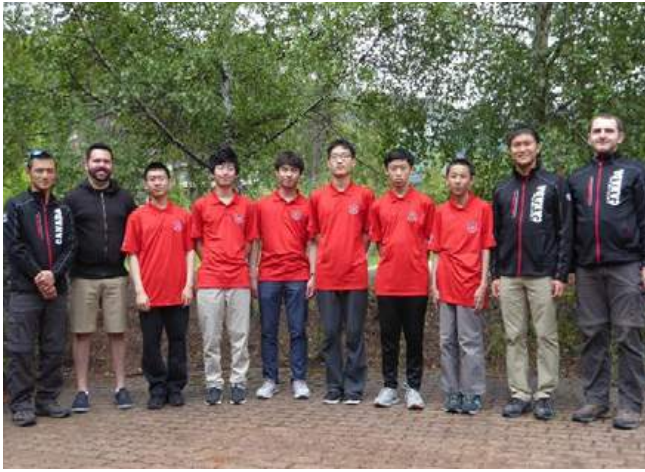
The Summer Training Seminar took place at BIRS, in Banff, from June 24 until July 5, 2018. This year the training camp was just for the students of Math Team Canada without any additional students. The training was organized by the leaders, James Rickards, Calvin Deng and Vincent Chan, with the help of Mike Pawliuk, who attended the whole camp.

Both the team and the leader, James Rickards, went to Romania one day early, to be able to recover from jet-lag before the contest. This worked out very well for everybody.

CMS Canada Math Camp

The Canada Math Camp is designed primarily for younger Canadian students with at least two years remaining in high school (grades 8-10) and with the potential to compete at the Mathematical Olympiad level. Participation in this camp is by invitation only. Students are charged a registration fee of $250 (plus tax) each.

The 2018 CMS Canada Math Camp took place at the University of Toronto from July 28 – August 4, organized by Supreet Randhawa. Twenty-three students attended the camp (five female, eighteen male). Fourteen were from Ontario, six from west of Ontario, and three from Eastern Canada. The selection process was based predominantly on the results of the COMC with some being invited based on scores in the Waterloo competitions and some on a referral basis.

See the Education Committee report for information about other Math Camp activities.

The Canadian Open Mathematics Challenge

The 23rd writing of the COMC, the second one sponsored by the Casualty Actuarial Society and the Society of Actuaries, took place on November 8-9, 2018. The contest was again supported by a partnership of universities from across Canada. The CMS extends a special note of thanks and appreciation to all the volunteers, at several locations across the country, who helped to mark the competition papers. This was also our second year working with Crowdmark and generally the reactions were very positive. Some of the issues of the first year were resolved and it made it possible to provide help to any marking centre that could not get its marking finished in time. This was an issue for the University of Toronto this year and should perhaps be considered in the division of work for next year.

This was the first year that we partnered with Asdan to make the exam available to a much larger contingent of students in China.

The competition questions were developed by the 2018 Problem Committee which consisted of Margo Kondratieva, Alex Song, James Rickards, Lino Demasi, Adrian Tang, Shawn Godin, and Yuliya Nesterova. We thank them for all their hard work and welcome the new members to the committee.

We are grateful to the Casualty Actuarial Society and the Society of Actuaries for their commitment to sponsor our competitions for the coming two years as well.

The COMC has several purposes. First and foremost, it aims to encourage students in their exploration of mathematics and problem solving. Second, the COMC provides an enrichment activity for teachers to use with their students during the fall term. Third, the COMC is used by the CMS to identify students who will write the Canadian Mathematical Olympiad and who will attend, among other events, the Winter Training Seminar and the Canada Math Camp. It is also used in the team selection for Canada's EGMO team.

High school students writing the COMC exam in Albania.

The 2018 COMC had 7077 students participating (5791 in Canada and 1286 elsewhere, of which 865 wrote with ASDAN in China); all these numbers are significantly higher than in 2017. There was one perfect paper (in the Philippines). The paper had a median mark of 23.5 out of 80, 10 points lower than the previous year. This was primarily caused by problem C2. Students wrote long answers without getting to a solution. This also presented a challenge to the markers.

As in previous years, the top awards in the 2018 COMC were given in two categories to allow Canadian citizens residing outside of Canada to be eligible for prizes and awards.

The first category this year is Canadian-schooled students and Canadian citizens/PR-card holders at schools outside Canada. The top competitors in this category were:

- **Gold Award**: Freddie Zhao, ICAE, MI, USA
- **Silver Award**: Victor Rong, Marc Garneau CI, Toronto, ON
- **Bronze Awards**: Howard Halim, University of Toronto Schools, Toronto, ON; Eric Shen, University of Toronto Schools, Toronto, ON; Edgar Wang, Marianopolis College, Westmount, QC; William Zhao, Richmond Hill HS, Richmond Hill, ON

Three other Canadian students were named to the Honour Roll:

- Yundi George Duan, Western Canada HS, Calgary, AB;
- Thomas Guo, Phillips Exeter Academy, USA;
- Michael Li, Marc Garneau CI, Toronto, ON.

In addition, hundreds of awards at the provincial level and at various regional and grade levels were made, and gift certificates were given out through random draws. A number of prizes were also awarded to teachers in appreciation of their participation in the 2018 COMC.

In the International category the top competitors were:

- Gold Award: Andres Rico III Gonzales, Math Trainers Guild of Philippines, Philippines
- Silver Award: Moses Mayer, Surya Institute, Indonesia
- Bronze Award: Jingyue Zhang, Shanghai High School, Shanghai

One additional student was listed on the International Honour Roll:

- Adithya Balachandran, Bergen County Academies, USA

Further details are available at **www.cms.math.ca/ Competitions/COMC/**.

Education Committee
Chair: Joseph Khoury (Ottawa)

The Education committee of the Canadian Mathematical Society (CMS) plays a central role in the life of the Society and the mathematical community as a whole. Most important roles of the committee include: selecting laureates for the CMS prestigious education awards (Adrien Pouliot and the CMS Excellence in awards), helping to organize education sessions for the two meetings, deciding on funding for various provincial competitions and overseeing the Math Camps program of the Society. In addition, the committee plays a central role in directions the CMS should take with regards to matters related to education.

The following is a summary of various activities the committee was involved in 2018:

1. The Committee selected the CEMC (Centre for Education in Mathematics and Computing, Waterloo) as the recipient for the 2018 Adrien Pouliot Award. Ian Venderburgh accepted the award on behalf of the CEMC at the winter meeting (Vancouver). The Adrien Pouliot Award was inaugurated to recognize individuals or teams of individuals who have made significant and sustained contributions to mathematics education in Canada.

2. The Committee selected Gary MacGillivray (Victoria) as the recipient for the 2018 CMS Excellence in Teaching Award. Gary received his award at the summer meeting in Fredericton. The prize recognizes sustained and distinguished contributions in undergraduate teaching. Full-time university, college, two-year College, or CEGEP teachers in Canada with at least five years teaching experience at their current institution can be nominated.

3. In 2018, there were 11 requests for funding for the Provincial competitions grants. The committee found all of them worthy of support. A total amount of $5,000 was distributed to partially support these activities.

4. The education session ``Active Learning in Undergraduate Mathematics Classrooms" took place at the summer meeting in Fredericton and was organized by Caroline Cochran (Acadia), Danielle Cox (Mount St. Vincent) and Patrick Reynolds (University of New Brunswick).

Gary MacGillivray (Victoria) receives the Excellence in Teaching Award, with CMS Past-President Michael Bennett and CMS President Mark Lewis.

5. At the Winter meeting (Vancouver), three education sessions took place:

   - "Indigenization and Reconciliation through University Mathematics: Why, When, and How?" organized by Darja Barr (University of Manitoba), Shawn Desaulniers (University of Alberta) , Edward Doolittler (First Nations University of Canada) and Veselin Jungic (SFU).

   - "Educational Resources in Mathematics" organized by Kseniya Garaschuk, (Fraser Valley), Andrew Hare (Saint Mary's), Petra Menz, (Simon Fraser)

   - "Authentic Teaching and Learning in University Mathematics" organized by Fok-Shuen Leung (UBC) and Vanessa Radzimski (Fraser Valley).

6. In consultation with Frederic Goudreau (Laval), the committee recommended names to serve on the nomination committee of the ICMI (International Commission on Mathematics Instruction).

7. In 2018, the committee approved funding for 23 regional camps across Canada. The National camp was held at the University of Toronto at the end of July with 23 participants (5 female and 18 males). The Canada Math Camp is an invitation-only camp offered to grade 8 – 10 students who are top scorers on the Canadian Open Mathematics Challenge (COMC).

Student Committee
Co-chairs: Jean Lagacé (Montréal) and Yuliya Nesterova (Queen's)

The year of 2018 was a challenging one for the Student Committee (Studc), but we finished strong. We had trouble connecting to the student body and struggled to upkeep the projects already underway; yet, we also addressed those concerns, took steps to increase our online presence and held a very successful CUMC.

We had five new members join us in July, with each taking on a different role within the committee: Alison Cane (UOttawa), Daniel Zackon (University of Toronto), Ismail Abouamal (University of Toronto), Lara Winkless (University of British Columbia), and Yuliya Nesterova (Queen's University). Four of these immediately took part in organizing Winter meeting sessions and taking over as website coordinators; Yuliya took over as co-chair from Aram Dermenijan (UQAM), who has retired from the committee.

Our presence at the Summer Meeting in Fredericton was effective but did not reach as many people as we had hoped, with 8 posters on display, 7 student talks, and 15 people braving a frigid evening on the night of the social. Following this, we made an effort to increase social media and email outreach. We also offered two workshops regarding outreach and teaching. At the winter meeting in Vancouver, more than 15 dazzling posters were on display, 5 student talks, and 7 guests to our mini escape room social. We've helped provide support to regional conferences like the Ottawa Math Conference and SUMM 2018.

CUMC was exceedingly successful, this year hosted by the University of Saskatchewan in Saskatoon, July 11-15, under the leadership of CUMC President Nicole Zolkavich. With 104 student participants, showcasing 62 student talks, a poster session, two expert panels, workshops in LaTeX and Maple, and a tour of Canada's only synchotron facility, the meeting whet the student's appetite for mathematical involvement. This was apparent not only in the ample positive feedback the organizers received, but in a renewed enthusiasm for the bids to host the next CUMC. The meeting's two expert panels, Women in Math and Industry and Academia, were very popular and conveyed a wealth of knowledge to the attendees.

We have updated our mailing data to better keep track of what student societies exist at various universities. It is our hope that we can liaison with regional organizations in the future to better avail students to the many sparkling opportunities that mathematics and the CMS offers them.

Nominating Committee
Chair: David Pike (Memorial)

The CMS Nominating Committee actively solicits and recruits individuals with an interest in volunteering with the CMS, in support of the Canadian mathematics community. The Nominating Committee ensures that the Executive and Board receive all necessary nominations required to fill vacancies in CMS standing committees, and also that a slate of nominations is received for Executive and Board elections. It also periodically reviews the terms of reference for all CMS standing committees.

During 2018, 176 individuals contributed to the work of the CMS, either by election or by serving on one or more of the CMS's standing committees, subcommittees or editorial boards. In 2018 there were 269 appointments to committees, subcommittees, or editorial boards that took effect, including 58 appointments to standing committees.

Finance Committee
Chair: Bradd Hart (McMaster)

The mandate of the Finance committee is to provide the executive committee and the Board with financial oversight of the operations of the CMS. The committee typically meets twice a year; once in the spring and once in the fall. The committee notes that the change of publisher of both the Bulletin and the Journal seems to be proceeding well and this has had a stabilizing effect on the Society's finances. The next level of concern is declining membership, which the committee recommended the executive and board examine. Overall, the Society is in better shape financially than it has been in several years.

Endowment Grants Committee
Chair: Franco Saliola (UQAM)

The CMS Endowment Grants Committee adjudicates proposals for projects that request financial support from the CMS Endowment Grants Competition. Projects that are funded must contribute to the goals of the CMS and to the broader good of the Canadian mathematical community.

In 2018 the total of all funding requests considered by the EGC was once again more than double the amount budgeted to the program, although the budget was increase by $3,000 more over the previous year. The committee deliberated and eventually arrived at consensus. In 2018, the CMS funded the eight programs described on page 25.

Grants

Through the Society's Competitions and Endowment Grants Programs, the CMS funds projects that promote the discovery, learning and application of mathematics in Canada. The following grants were awarded in 2018.

Endowment Grants

- Grade 12 Calculus Teachers Workshop – Queen's University
- Math Alumni Talks and Networking – McGill University
- Math Enrichment at Carleton - Carleton University
- Math Horizons Day – University of Ottawa
- Math in the Community – University of Toronto
- "Math Kafé" Connecting mathematics educators across Canada – McMaster University
- Nouvelle semaine des maths, ateliers, spectacles et formations – Université Laval
- Présentation du spectacle « Compte Sur Moi! » et création d'outils pédagogiques complémentaires - Université Laval

Provincial Competition Grants

- Alberta High School Mathematics Competition
- Alberta Team Math Attack
- Association québécoise des jeux mathématiques (AQJM) - Championnat international des jeux mathématiques
- BC Secondary School Math Contest – Mid Island Region
- BC Secondary School Mathematics Contest – Okanagan Region
- BC Secondary Schools Math Contest – UFV
- Canadian Math Kangaroo Contest - Okanagan College
- Caribou Cup Contest
- Concours de mathématiques Möbius
- Concours de mathématiques Poincaré
- Concours de mathématiques Sierpinski
- Grand River Chinese School - The Nine Chapters of Mathematical Art
- IMMC - International Mathematical Modeling Challenge
- Manitoba Mathematical Competition
- Math Competition Lou MacNarin School
- Mohawk Math Engineering Competition
- Online Mathematics Competition for High Schools Students-McMaster
- Reaching Smaller Schools: Making Contests More Accessible - New Brunswick
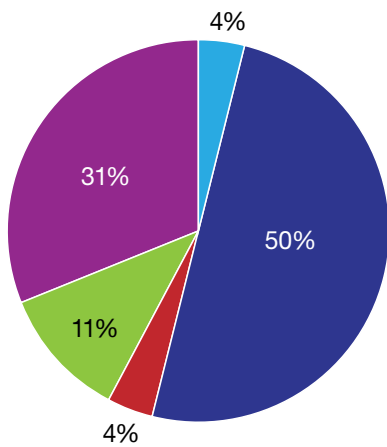
Financial Overview
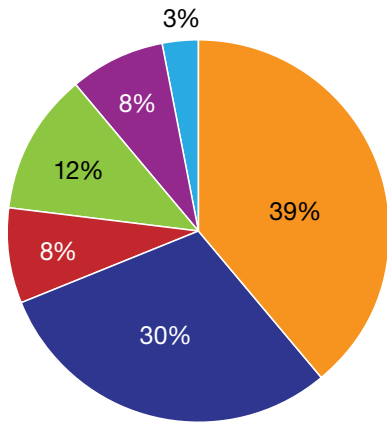
Revenue $1,814,415

- Registration fees, other sales
- Membership fees
- Grants
- Other
- Services, advertising and sales
- Subscriptions and publications
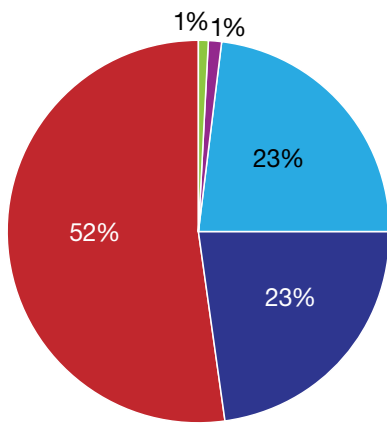
Expenses $1,916,761

- Learning
- Discovery
- Operations
- Other
- Advancement

Invested Funds $2,139,996

- Legacy
- Operations
- Olympiads
- Endowment
- Borwein Distinguished Career

Donors

Individual Donors

The Canadian Mathematical Society is very appreciative of the following individuals for their financial support and encouragement as well as those supporters who contributed anonymously to the Society's various activities.

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