

# Mathematics People

## Ghoussoub Awarded 2019 CRM-Fields-PIMS Prize



Nassif Ghoussoub

NASSIF GHOUSSOUB of the University of British Columbia has been awarded the 2019 CRM-Fields-PIMS Prize. The citation reads: “Nassif Ghoussoub has a remarkable record of deep, original, and influential contributions to the theory and applications of functional analysis, the calculus of variations, and partial differential equations. His pioneering work on the resolution of De Giorgi’s

conjecture, on the PDE of microelectromechanical systems, and on the theory of self-dual PDE have all had a lasting impact on mathematical analysis. This is in addition to his extraordinary contributions to Canadian mathematics in general.”

Nassif Ghoussoub was born in Mali and obtained his PhD from Université Pierre et Marie Curie in 1975. He did a postdoctoral fellowship at the Ohio State University (1976–1977), then joined the mathematics department at the University of British Columbia, where he is currently Distinguished University Professor. His honors include the Coxeter-James Prize (1990), the Jeffery-Williams Prize (2007), and the David Borwein Distinguished Career Award (2010), all from the Canadian Mathematical Society (CMS). He was awarded the Queen Elizabeth II Diamond Jubilee Medal in 2012. He served as vice president of the CMS from 1994 to 1996. He is founder and scientific director of the Banff International Research Station and has also been founding director of PIMS and co-editor-in-chief of the *Canadian Journal of Mathematics*. He is a Fellow of the Royal Society of Canada (1994), of the American Mathematical Society (2012), of the Fields Institute (2017), and of the CMS (2018). He is an Officer of the Order of Canada.

The prize is awarded by the Centre de recherches mathématiques (CRM), the Fields Institute, and the Pacific Institute for the Mathematical Sciences (PIMS) to recognize exceptional research achievement in the mathematical sciences. The candidate’s research should have been conducted primarily in Canada or in affiliation with a Cana-

dian university. The prize consists of a monetary award and an invitation to present a lecture at each institute.

—From a CRM-Fields-PIMS announcement

## Vasey and Harrison-Trainor Awarded Sacks Prizes



Sebastien Vasey

MATTHEW HARRISON-TRAINOR of Victoria University, Wellington, and SEBASTIEN VASEY of Harvard University were awarded 2017 Gerald Sacks Prize of the Association for Symbolic Logic (ASL).

In his thesis, “The Complexity of Countable Structures,” Harrison-Trainor established many very strong theorems in computable structure theory. Of these results, two stand out. His full description of the Scott spectrum of a theory was a very surprising general result whose proof settled several open problems, including ones raised by Marker, Sacks, and Montalbán. The second provides a thorough analysis of degree spectra and degrees of categoricity on cones. It shows that the behaviors of these notions are natural in the sense of relativizing to all degrees above some fixed one. Harrison-Trainor received his PhD in 2017 from the University of California, Berkeley, under the direction of Antonio Montalbán.

Vasey, in his thesis “Superstability and categoricity in abstract elementary classes,” undertook a deep and sustained study of classification theory for abstract elementary classes. Among the many theorems he proved, his eventual categoricity theorem for universal classes is recognized as a landmark achievement towards Shelah’s conjecture generalizing Morley’s theorem on uncountable categoricity to abstract elementary classes. A second remarkable result is his classification of the stability spectrum for tame AECs, which may well pave the way for connections with, and applications to, other areas of mathematics. Vasey received his PhD in 2017 from Carnegie Mellon University under the direction of Rami Grossberg. He tells the *Notices*: “I started out as an engineer: my undergraduate studies (at EPFL, in Lausanne) were in communication systems engineering.

My encounter with mathematical logic in 2010, and an exchange year at Carnegie Mellon University in 2011–2012, made me decide to change fields and turn to pure mathematics. I also have a solid background in computer science, especially in programming languages and the theory of computation. I know bits and pieces about GNU Linux/Unix system administration.”

The Sacks Prize is awarded annually for the most outstanding doctoral dissertation in mathematical logic.

—From an ASL announcement

## Churchill Scholarships Awarded

Three students in the mathematical sciences have received scholarships from the Winston Churchill Foundation of the United States for the 2019–2020 academic year. The Churchill Scholars are RYAN CHEN of Princeton University (pure mathematics), ANTHONY CONIGLIO of Indiana University (applied mathematics), and BRIAN SEYMOUR of the University of Virginia (applied mathematics). The scholarships cover one year of master’s study at Churchill College in the University of Cambridge. The awards cover full tuition, a stipend, travel costs, and the chance to apply for a US\$2,000 special research grant.

—From a Churchill Foundation announcement

## Sjöstrand Awarded 2018 Bergman Prize



Johannes Sjöstrand

JOHANNES SJÖSTRAND of Université de Bourgogne has been awarded the 2018 Bergman Prize. Established in 1988, the prize recognizes mathematical accomplishments in the areas of research in which Stefan Bergman worked. Sjöstrand will receive a cash award of US\$26,000, the 2018 income from the Stefan Bergman Trust.

### Citation

Johannes Sjöstrand is awarded the Bergman Prize for his fundamental work on the Bergman and Szegő kernels, as well as for his numerous fundamental contributions to microlocal analysis, spectral theory, and partial differential equations (PDEs). He is especially being recognized for his groundbreaking work with L. Boutet de Monvel on describing the singularities and asymptotics of the Bergman and Szegő kernels in strictly pseudoconvex domains in  $\mathbb{C}^n$ . This work has been highly influential in subsequent developments on these and related topics. Sjöstrand is also being recognized for his contributions to microlocal analysis, spectral theory, and PDEs. Together with A. Melin, he has developed the theory of Fourier integral operators with complex-valued phase functions, with applications to the oblique derivative problem. In joint work with R. B. Melrose, he has obtained fundamental results on the propagation of singularities for boundary value problems. Sjöstrand has created the powerful and highly influential approach to analytic microlocal analysis, based on the theory of Fourier-Bros-Iagolnitzer (FBI) transforms and on the use of exponentially weighted spaces of holomorphic functions on the transform side. This approach was shown to be crucial in the study of regularity and propagation of singularities for PDEs (including boundary value problems) in the real analytic category. In joint work with B. Helffer, Sjöstrand has developed an incisive and far-reaching analysis of the tunnel effect for semiclassical Schrödinger operators, including a study of the Witten complex, and has contributed significantly to the understanding of the fine spectral properties of the Harper operator. The work of Johannes Sjöstrand in the theory of scattering resonances, including joint work with M. Zworski, has had a truly revolutionary impact on the subject. Among the many groundbreaking results obtained by Sjöstrand in this direction, we mention a microlocal version of the method of complex scaling and a local trace formula for resonances. Sjöstrand has given numerous decisive contributions to the spectral theory of non-self-adjoint operators, including operators of Kramers-Fokker-Planck type (joint work with

F. Hérau and C. Stolk) and analytic non-self-adjoint operators in dimension two (joint work with A. Melin and with M. Hitrik). More recently, Sjöstrand has completed a deep and fundamental analysis of the Weyl asymptotics for the eigenvalues of non-self-adjoint differential operators in the presence of small random perturbations.

Sjöstrand received his PhD from Lund University in 1972 under the direction of Lars Hörmander. He has been affiliated with the University of Paris XI as well as Bourgoigne. He is a member of the Royal Swedish Academy of Sciences and was elected to the American Academy of Arts and Sciences in 2017.

Sjöstrand says: "I was asked by the *Notices* to give some interesting facts. Here is one: My thesis advisor, Professor Lars Hörmander, was away to spend the academic year 1970–1971 at Courant Institute, and since there was not very much for me to do in Lund, I asked Professor Lars Gårding about the possibility of travelling to some other place in the Spring semester. He advocated Aarhus, Paris, or Cambridge (England). After some thought, I decided on Paris as the most exciting place. This was a slightly random decision about a mathematical excursion at an unstable equilibrium point of my life; the following events included less choice, and I ended up in France for good. Maybe there was also some fascination for French culture that started with Babar that my parents read to me in Swedish translation. It takes more than a generation to become fully French and to be accepted as such, but with my wife we are happy to see that all our children and grandchildren live in France and are quite well settled."

### About the Prize

The Bergman Prize honors the memory of Stefan Bergman, best known for his research in several complex variables, as well as the Bergman projection and the Bergman kernel function that bear his name. A native of Poland, he taught at Stanford University for many years and died in 1977 at the age of eighty-two. He was an AMS member for thirty-five years. When his wife died, the terms of her will stipulated that funds should go toward a special prize in her husband's honor.

The AMS was asked by Wells Fargo Bank of California, the managers of the Bergman Trust, to assemble a committee to select recipients of the prize. In addition, the Society assisted Wells Fargo in interpreting the terms of the will to ensure sufficient breadth in the mathematical areas in which the prize may be given. Awards are made every one or two years in the following areas: (1) the theory of the kernel function and its applications in real and complex analysis and (2) function-theoretic methods in the theory of partial differential equations of elliptic type with attention to Bergman's operator method.

The members of the selection committee for the 2018 Bergman Prize were:

- Donatella Danielli
- Peter Ebenfelt
- Anna Mazzucato (Chair)

—Elaine Kehoe

A list of the past recipients of the Bergman Prize can be found at [www.ams.org/profession/prizes-awards/pabrowse?purl=bergman-prize](http://www.ams.org/profession/prizes-awards/pabrowse?purl=bergman-prize).

### Credits

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### Advertisement

#### Call for Nominations for the Ostrowski Prize, 2019

The aim of the Ostrowski Foundation is to promote the mathematical sciences.

Every second year it provides a prize for recent outstanding achievements in pure mathematics and in the foundations of numerical mathematics. The value of the prize for 2019 is 100.000 Swiss francs.

The prize has been awarded every two years since 1989. The most recent winners are Oded Schramm in 2007, Sorin Popa in 2009, Ib Madsen, David Preiss and Kannan Soundararajan in 2011, Yitang Zhang in 2013, Peter Scholze in 2015, and Akshay Venkatesh in 2017.

See [https://www.ostrowski.ch/index\\_e.php](https://www.ostrowski.ch/index_e.php) for the complete list and further details.

The jury invites nominations for candidates for the 2019 Ostrowski Prize.

Nominations should include a CV of the candidate, a letter of nomination and 2-3 letters of reference.

The Chair of the jury for 2019 is Marcus Grote of the University of Basel, Switzerland.

Nominations should be sent to [marcus.grote@unibas.ch](mailto:marcus.grote@unibas.ch) by May 31, 2019.