Prix Adrien-Pouliot

Adrien Pouliot Award

Melania
Alvarez
(PIMS; UBC)

Melania Alvarez occupe un poste combiné de coordonnatrice de l'éducation pour la Colombie-Britannique à l'Institut du Pacifique pour les sciences mathématiques et de coordonnatrice de la formation au Département de mathématiques de l'Université de la Colombie-Britannique (UBC). Depuis son entrée en poste en 2005, elle a grandement influencé l'enseignement des mathématiques à tous les niveaux, par son travail avec les élèves, les étudiants, les enseignants, les parents et la communauté dans son ensemble. Chaque année, elle contribue à l'organisation de dizaines d'ateliers de résolution de problèmes à l'intention des élèves de la maternelle à la 12e année, des ateliers de mathématiques pour le personnel enseignant, des programmes de mentorat, des clubs de devoirs et toutes sortes de concours et d'activités mathématiques. Elle suscite l'intérêt des jeunes et de leurs parents pour les mathématiques grâce à des programmes stimulants de sensibilisation basés sur des jeux et des casse-tête, auxquels elle ajoute son grand enthousiasme dans l'animation des activités. Melania travaille avec l'ensemble de la communauté et se dit choyée de l'appui soutenu qu'elle reçoit des enseignants, des directions d'école, des éducateurs, des parents, des bénévoles, des donateurs et des mathématiciens.

Le comité de sélection du prix Adrien-Pouliot a été impressionné par son travail avec la communauté autochtone, principalement en Colombie-Britannique, mais aussi en Alberta et en Saskatchewan.

Elle organise des activités de toutes sortes : des ateliers à la Station de recherche internationale de Banff avec du personnel enseignant, des aînés et des mathématiciens; des camps d'été; des programmes de mentorat et des visites dans les classes par des mathématiciens et des éducateurs. Au cours des dernières années, des élèves qui ont profité de ces programmes ont obtenu leur diplôme avec le cours de mathématiques de 12e année, un cours obligatoire pour être admis dans certains programmes universitaires, notamment les programmes de science et de génie. Melania et la communauté avec laquelle elle travaille y voient une première étape importante et espèrent que de nombreuses autres suivront.

Melania Alvarez a obtenu un baccalauréat en sciences (actuariat) de l'Université nationale du Mexique, une maîtrise en sciences (recherche opérationnelle) de l'Université Stanford et une maîtrise en économie de l'Université du Wisconsin-Madison. Elle a travaillé dans le secteur privé en analyse du risque et comme associée de recherche au programme d'évaluation quantitative de l'Université du Wisconsin-Madison. Elle est en ce moment en rédaction de thèse pour l'obtention d'un doctorat en enseignement des mathématiques à l'Université Simon Fraser.

Melania Alvarez holds a joint appointment as BC Education Coordinator at the Pacific Institute for the Mathematical Sciences and as Outreach Coordinator for the UBC Mathematics Department. Since assuming this position in 2005, she has had a profound impact on mathematics education at all levels, working with students, teachers, parents, and the community as a whole. Each year, she helps organize dozens of problem-solving workshops for K-12 students, math workshops for teachers, mentorship programs, homework clubs and a variety of math competitions and events. She has raised the mathematical delight of young students and their parents with exciting outreach programs using games and puzzles and her own sense of fun to give a lively spirit to the proceedings. Melania works with the community at large and gives credit to the great support she constantly receives from teachers, principals, educators, parents, volunteers, donors and mathematicians.

The Adrien Pouliot selection committee was impressed with her work with the Aboriginal community, principally in British Columbia, but also in Alberta and Saskatchewan. She organizes many events of different kinds: workshops at BIRS with teachers, elders and mathematicians, summer

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Le prix Adrien-Pouliot rend hommage aux personnes ou aux groupes qui ont fait une contribution importante et soutenue à l'enseignement des mathématiques au Canada. Le prix a été décerné pour la première fois en 1995.

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. The first award was presented in 1995.

Jeffery-Williams Prize *(continued)*

a Leadership Support Initiative Award from NSERC. In 2010 he was awarded the Excellence in Research Prize from Queen's University. His results have been published in the most distinguished mathematical journals including Inventiones Mathematicae, the Duke Mathematical Journal, Advances in Mathematics, Documenta Mathematica, and the American Journal of Mathematics.

Dr. Speicher's area of research, free probability (which was introduced by Voiculescu), lies on the interface between operator algebras and probability theory. This theory had its origins in quantum theory, one of the most successful scientific theories of the twentieth century. At the birth of the quantum age, Werner Heisenberg pronounced that quantum theory must be based on the non-commutative algebra of matrices. The achievement of free probability is its ability to deal with non commuting random variables.

Dr. Speicher is also known for many other important contributions. Among them are the Fock space representation of the deformed Heisenberg commutation relations, the discovery of R-diagonal operators, a stochastic calculus for free Brownian motion, the discovery and classification of easy quantum groups, and the discovery of higher order freeness.

In particular, his 1991 CMP paper (with Bozejko) solved a 20 year old problem on the existence of a Fock space representation of the deformed Heisenberg commutation relations and is among the most heavily cited papers in the subject. His recent CMP paper (with Koestler) on a free de Finetti theorem shows that special quantum groups are the adequate symmetries for free probability and presents a major breakthrough.

After studying physics and mathematics in Saarbrucken, Freiburg, and Heidelberg, Dr. Speicher received his PhD in 1989 and his Habilitation in 1994 at the University of Heidelberg. He joined the faculty at Queen's University in 2000 and he currently holds a joint appointment at the Saarland University, Germany.

Doctoral Prize *(continued)*

Bozejko and Speicher, obtained as q-deformations of the two classical quantum mechanical operator systems. They showed that these algebras are always exact, and made progress on a conjecture of Dykema and Nica. In the year since completing his degree, he has written several more papers on multivariable operator theory in the commutative and non-commutative settings. He has proven to be an accomplished researcher with great prospects for the future.

Matthew Kennedy obtained his PhD in mathematics from the University of Waterloo in 2011. He declined an NSERC PDF in order to take a tenure track job at Carleton University.

Adrien Pouliot Award *(continued)*

camps, mentorship programs, and classroom visits by mathematicians and educators. Over the past few years a number of students who have benefited from these programs have graduated with grade 12 math, a course that is required for entry into university programs in subjects such as science and engineering. Melania and the community she works with see this as a significant initial step and hope many more will follow.

Melania Alvarez obtained her BS degree in actuarial science from the National University of Mexico, she holds an MS in Operations Research from Stanford University and an MS in Economics from the University of Wisconsin-Madison. She has worked in the private sector as a risk analyst and as a research associate in the Quantitative Assessment Program at the University of Wisconsin-Madison. Currently she is preparing a dissertation for a PhD in mathematics education at Simon Fraser University.