

The winner of the 2015 CRM-Fields-PIMS : Professor Kai Behrend (UBC)

Montréal, December 1st, 2014. - Professor Behrend is an internationally recognized leader in the field of algebraic geometry, whose contributions to the subject are noted both for their depth and scope. He has obtained fundamental results in the theory of algebraic stacks, Gromov-Witten theory and the study of Donaldson-Thomas invariants.

In particular, his pioneering works on the construction of a "virtual fundamental class" played a key role in laying the algebraic foundations of the Gromov-Witten theory. Later, he made a breakthrough in the study of the Donaldson-Thomas invariants by showing that, for certain spaces, the degree of the virtual fundamental class could be expressed as the topological Euler characteristic weighted by a natural constructible function, depending only on the intrinsic properties of the space. This function is now widely known as Behrend's function. It allowed the use of motivic methods to compute Donaldson-Thomas invariants, and made it possible to obtain their categorified and motivic versions, which is currently among the hottest trends in the subject. In his earlier work, Professor Behrend obtained an important generalization of the Lefschetz trace formula for algebraic stacks, presently known as Behrend's trace formula. The ideas put forward by Kai Behrend have already proven to be immensely influential and will undoubtedly have a lasting impact on this area of mathematics.

Kai Behrend received a Ph.D. in 1991 at the University of California, Berkeley. He joined the faculty of the University of British Columbia in 1994. Professor Behrend has received numerous recognitions for his research, including the 2001 Coxeter-James Prize and the 2011 Jeffery-Williams Prize of the Canadian Mathematical Society, as well as an invitation to speak at the International Congress of Mathematicians in Seoul in 2014.

For further information : www.crm.umontreal.ca/prix/prixCRMFieldsPIMS/prixCFP15_an.shtml
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