

Alexei Borodin Awarded 2015 Loève Prize

The 2015 Line and Michel Loève International Prize in Probability is awarded to Alexei Borodin of MIT. The prize, which carries a monetary award of \$30,000, will be presented at a ceremony in Berkeley to be held in November 2015.

Borodin received his Ph.D. in 2001, advised by Alexandre Kirillov at University of Pennsylvania. His 2000 papers *Distributions on partitions, point processes, and the hypergeometric kernel* (with Olshanski) and *Asymptotics of Plancherel measures for symmetric groups* (with Okounkov and Olshanski) spotlighted and named the notion of *determinantal point process* in which correlations are given by a determinant based on some specific kernel. Originating in the study of specific random matrices, these have subsequently been shown to arise in a huge variety of contexts both within random matrix theory and in superficially quite different contexts, such as uniform random spanning trees, random dimer covers of planar graphs, non-intersecting random walks, and zeroes of random analytic functions. Amongst Borodin's own major contributions to this field was the 2007 paper *Fluctuation properties of the TASEP with periodic initial configuration* (with Ferrari, Prähofer and Sassamoto). More recently, the 2014 175-page paper *Macdonald processes* (with Corwin) provides a unified framework for various probability measures arising in the study of models within the KPZ universality class, for which surprisingly explicit results can be obtained. Overall his work touches an unusually broad collection of mathematical areas: representation theory, combinatorics, Lie theory, probability and hard analysis. His writing is marked by amazing clarity, perspective and attention to history.

About the Prize. The Prize commemorates Michel Loève, Professor at the University of California, Berkeley, from 1948 until his untimely death in 1979. The Prize was established by his widow, Line, shortly before her death in 1992. Awarded every two years, it is intended to recognize outstanding contributions by researchers in probability who are under 45 years old.