Ramanujan Prize 2017

It is our pleasure to announce that the winner of the 2017 Ramanujan Prize for Young Mathematicians from Developing Countries is Eduardo Teixeira of the Federal University of Ceará, Brazil. The prize is in recognition of Teixeira's outstanding work in Analysis and Partial Differential Equations.

Teixeira started working on free boundary problems during his PhD thesis, proving existence and regularity results, and obtaining qualitative properties of solutions, in the theory of nonlinear heat conduction. Subsequently, in collaboration with L. Zhang, he obtained Almgren's type frequency formulas in Riemannian manifolds. He then introduced an original approach to the regularity of degenerate elliptic equations, which consists in viewing the set of critical points of a solution as a free boundary. This interesting point of view led him to prove the continuity conjecture for elliptic equations with high order singular structures, and in solving, in collaboration with Araujo and Urbano, a long standing conjecture on the optimal regularity for the p-Laplacian in two-dimensions. Teixeira has contributed to many other aspects of the theory of nonlinear elliptic equations. A perfect example is his recent breakthrough, in collaboration with Y. Li and Z.-C. Han, on the asymptotic radial symmetry of solutions to the kth-order Yamabe equation in punctured domains, a deep and original contribution to the theory of conformally nonlinear elliptic PDEs.

The Prize is also in recognition of Professor Teixeira's determined pursuit of high-level research in his home institution in the northeast of Brazil, where over the last decade he has founded and directed one of the major research groups in nonlinear PDEs in Latin America. It is hoped that his example will inspire mathematicians working at the highest levels while based outside main established centres of research.

The selection committee consisted of Idris Assani, Rajendra Bhatia, Alicia Dickenstein, Stefano Luzzatto (chair), Van Vu. The nominations this year were extremely strong and the final decision was based on the current rules and guidelines of the prize and was carried unanimously.