The Sixth Vasil Popov Prize

awarded to

Joel A. Tropp of California Institute of Technology

Thirteenth International Conference in Approximation Theory
San Antonio, Texas
March 8, 2010

The Popov Prize honors the memory of Vasil A. Popov (1942-1990), the Bulgarian analyst best known for his work in Nonlinear Approximation. The Prize is awarded every third year to a young mathematician (less than six years removed from the Ph.D.) for outstanding research contributions to Approximation Theory and/or related areas. Previous Popov Prize winners are Albert Cohen (Paris), Arno Kuijlaars (The Netherlands), Emmanuel Candes (Stanford), Serguei Denissov (Wisconsin-Madison), and Mauro Maggioni (Duke).

Joel Tropp was recognized for his outstanding contributions to the development of sparse reconstruction methods in the context of approximation from redundant systems, greedy algorithms, and most recently compressed sensing. In particular, he has shown that greedy algorithms will with high probability exactly recover sparse vectors from random measurements e.g. based on Gaussian or Bernouli distributions. This was a cornerstone result in showing the efficacy of greedy algorithms for decoding in compressed sensing. Another impressive result by Joel Tropp is the now famous COSAMP algorithm of Needell and Tropp, which were the first to establish the optimal performance of greedy decoding in ℓ^2. Tropp's work has significantly advanced the understanding of greedy algorithms and sublinear reconstruction algorithms in new highly relevant application contexts.

The Prize which consists of a marble pyramid trophy and a cash award of $2000 was presented to Joel Tropp by Pencho Petrushev of the University of South Carolina, Chair of the Popov Prize Selection Committee. The other members of the Selection Committee are Albert Cohen, Arno Kuijlaars, Wolfgang Dahmen, Paul Nevai, Allan Pinkus, and Edward Saff. After the Prize awarding, Joel Tropp gave a plenary lecture at the Conference entitled "Sparse Solutions to Linear Inverse Problems".

Joel Tropp is an Assistant Professor of Applied and Computational Mathematics at the California Institute of Technology. He received his Ph.D. in Mathematics in August 2004 from the University of Texas at Austin, under the supervision of Anna C. Gilbert and Inderjit Dhillon.

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