Conferences

2007 von Neumann Symposium

Sparse Representation and High-Dimensional Geometry Snowbird Utah July 8–12, 2007

The 2007 von Neumann Symposium on Sparse Representation and High-Dimensional Geometry, organized by Ron DeVore (University of South Carolina), David L. Donoho (Stanford University), Anna Gilbert (University of Michigan), and Jared Tanner (University of Utah), will take place July 8–12, 2007, Snowbird, Utah.

The topic was selected by the AMS von Neumann Symposium Committee, whose members at the time were Andrea L. Bertozzi (University of California Los Angeles), Robert L. Bryant (Duke University), and Robert Calderbank (Princeton University.).

Advances over the past two years connecting sparse representations and high-dimensional geometry suggest a new paradigm in information acquisition and processing. This interdisciplinary conference will bring together leading figures from all fields involved, and also from some nearby fields where hints of similar connections have been detected. Confirmed participants include experts in (1) applied harmonic analysis, (2) geometric functional analysis, (3) optimization, (4) signal and image processing, and (5) applications. Topics to be discussed include:

• Frameworks—general classes of problems where sparsity is present, its exploitation would be valuable and new methodologies which could exploit sparsity.

• Application Areas—current and emerging application areas where sparsity is present; properties of actual signals and images in those applications.

• Geometric Phenomenon—mathematical phenomena concerning high-dimensional collections of functions relevant to sparsity and sparse reconstruction algorithms.

• Algorithms—old and new algorithms for exploiting sparsity, and analysis of those algorithms.

• Application Results—describing achievements in fields ranging from astrophysical imaging to analog to digital conversion.

The conference will accommodate both the latest technical breakthroughs and general survey/framework type presentations.

Plenary Speakers — Confirmed: R. Baraniuk (Rice), E. Candès (CalTech), I. Daubechies (Princeton), R. DeVore (U. of South Carolina), D. L. Donoho (Stanford), A. Gilbert (Univ. of Michigan), W. Johnson (Texas A&M), B. Kashin (Steklov Math. Inst.), M. Muthukrisnan (Rutgers), V. Temlyakov (U. of South Carolina).

Invited Speakers — Confirmed: R. Calderbank (Princeton), V. Goyol (MIT), K. Grochenig (U. of Vienna), D. Healy (DARPA, U. of Maryland), F. Herrmann (U. of British Columbia), J.-L. Starck (Commissariat l'Energie Atomique), M. Strauss (Univ. of Michigan), J. A. Tropp (Univ. of Michigan), R. Vershynin (U. of California Davis).

An associated short course will be held at the Institute for Pure and Applied Mathematics (IPAM) from May 30 to June 1, 2007. Tutorials will be given by A. Gilbert (Univ. of Michigan), J. Romberg (Georgia Tech), J. Tanner (U. of Utah), J. Tropp (Univ. of Michigan), R. Vershynin (U. of California Davis), and J. Zou (U. of Maryland, College Park). Please visit `http://www.ipam.ucla.edu/programs/vn2007/` for further information.

The participation of qualified women, underrepresented minorities, junior scientists (advanced graduate students and recent Ph.D.'s), as well as industry and national laboratory representatives are especially encouraged. All persons who are interested in participating should watch the website for the conference at `http://www.ams.org/meetings/vonneumann07.html` and complete the online application form when it is posted.

All requests will be forwarded to the organizing committee for consideration. Letters of invitation with specific offers of support (if applicable) will be mailed in early April, along with a brochure of information, program information known to date, and information on travel and accommodation at Snowbird. Participants will be responsible for making their own travel and lodging arrangements.

Questions concerning the scientific program should be addressed to the organizers at `tanner@math.utah.edu`.