hausdorff center for mathematics

universitätbonn

September 23-27,2013

Workshop

Discrepancy, Numerical Integration and Hyperbolic Cross Approximation

Organizers: Tino Ullrich (Bonn), Vladimir N. Temlyakov (Columbia, SC)
Location: Mathematik-Zentrum, Lipschitz Lecture Hall, Endenicher Allee 60, Bonn

Efficient approximation and integration of multivariate functions is a crucial task for the numerical treatment of many multi-parameter real-world problems. Typically, the computation time of the algorithms grows dramatically with the number of variables. Therefore, one is interested in reasonable model assumptions and efficient algorithms. Quasi-Monte Carlo (QMC) integration and Hyperbolic Cross Approximation are two powerful methods which closely fit to function classes with a bounded mixed derivative. Those functions appear naturally in probability and discrepancy theory. They further serve as a suitable framework for the treatment of the electronic Schrödinger equation. Over the last 50 years the subject has developed into a beautiful, practically useful theory. Yet a number of important problems remain unsolved.

The aim of the workshop is to combine expertise from different communities to develop new methods and identify further fruitful research directions.

Invited Speakers:

Dmitrii Bilyk (Minneapolis)
Josef Dick (Sydney)
Zung Dinh (Hanoi)
Michael Gnewuch (Kaiserslautern)
Stefan Heinrich (Kaiserslautern)
Aicke Hinrichs (Jena)
Stefan Kunis (Osnabrück)
Erich Novak (Jena)
Dirk Nuyens (Leuven)
Peter Oswald (Bremen)
Jürgen Prestin (Lübeck)
Klaus Ritter (Kaiserslautern)
Reinhold Schneider (Berlin)
Winfried Sickel (Jena)
Maxim Skriganov (St. Petersburg)
Hans Triebel (Jena)
Greg Wasilkowski (Lexington, KY)
Henryk Woźniakowski (Warsaw, New York)
Harry Yserentant (Berlin)

http://www.hcm.uni-bonn.de/workshop-discrepancy