

Programme on
„Minimal Energy Point Sets, Lattices and Designs“
September 29 - November 21, 2014:

organized by

**Christine Bachoc (U Bordeaux), Peter Grabner (Graz U of Technology),
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Workshop on
„Sphere Packings, Lattices, and Designs“
October 27 - 31, 2014:

• **Monday, October 27, 2014**

09:00 – 09:30 **Opening & Registration**

09:30 – 10:30 **Eiichi Bannai**

Tight Euclidean t -designs and tight relative t -designs in certain association schemes

10:30 – 11:00 *coffee / tea break*

11:00 – 11:35 **Etsuko Bannai**

Tight Euclidean t -designs on two concentric spheres

11:35 – 12:10 **Ziqing Xiang**

Tight block designs

12:10 – 15:00 *lunch break*

15:00 – 16:00 **Fernando Oliveira Filho**

Optimization methods for packing problems

16:00 – 16:30 *break*

16:30 – 17:05 **Wöden Kusner**

A brief analysis of packing regular pentagons in the plane

17:05 – 17:40 **Yoav Kallus**

High-dimensional random packing lattices: Bravais new world

• **Tuesday, October 28, 2014**

09:00 – 10:00 **Gabriele Nebe**

Automorphisms of extremal lattices

10:00 – 10:30 *coffee / tea break*

10:30 – 11:05 **Rudolf Scharlau**

Configurations of short vectors in lattices: another application of method of Bachoc and Venkov

11:05 – 11:40 **Giovanni Lazzarini**

Spherical designs and height function of lattices

11:40 – 15:00 *lunch break*

15:00 – 16:00 **Renaud Coulangeon**

Computing unit groups of maximal orders using Voronoi algorithm

16:00 – 16:30 *break*

16:30 – 17:05 **Peter Gruber**

On Voronoi type results and problems for lattice packings and kissing numbers

17:05 – 17:40 **Mathieu Dutour Sikirić**

Practical Computing of Hecke operators

• **Wednesday, October 29, 2014**

09:00 – 10:00 **Oleg Musin**

Extreme problems of sphere packings and irreducible contract graphs

10:00 – 10:30 *coffee / tea break*

10:30 – 11:05 **Wei-Hsuan Yu**

New bounds spherical two-distance sets and equiangular line sets

11:05 – 11:40 **Peter Boyvalenkov**

Upper and lower bounds for potential energy of spherical designs

11:40 – 12:15 **Maya Stoyanova**

Computational algorithms for bounding potential energy of spherical codes and designs

19:00 **Social Dinner at “Heurigen”**

• **Thursday, October 30, 2014**

09:00 – 10:00 **Martin Ehler**

Designs in unions of Grassmannians

10:00 – 10:30 *coffee / tea break*

10:30 – 11:05 **Romanos Malikiosis**

Full spark Gabor Frames in Finite Dimensions

11:05 – 11:40 **Karlheinz Gröchenig**

A packing problem in time-frequency analysis

11:40 – 15:00 *lunch break*

15:00 – 16:00 **Lenny Fukshansky**

Well-rounded lattices from algebraic constructions

16:00 – 16:30 *break*

16:30 – 17:05 **Peter Zeiner**

Well-rounded sublattices in the plane

17:05 – 17:40 **Juan Pablo Rossetti**

Integral Lattices, the isospectral problem and the norm one

17:40 – 18:05 **Jingguo Bi**

Sub-Linear Root Detection for Sparse Polynomials Over Finite Fields

• **Friday, October 31, 2014**

09:00 – 10:00 **Andriy Bondarenko**

Strongly regular graphs in metric geometry

10:00 – 10:30 *coffee / tea break*

10:30 – 11:05 **Michael Shub**

Well-conditioned Polynomials

11:05 – 12:05 **Sinai Robins**

Cone theta functions and rational volumes of spherical polytopes

All talks take place at the ESI, Boltzmann Lecture Hall