

Workshop on
“Optimal Point Configurations on Manifolds”

January 17 - 21, 2022

organized by

**Christine Bachoc (U Bordeaux), Henry Cohn (Microsoft, Redmond), Peter Grabner (TU Graz),
Douglas Hardin (Vanderbilt U, Nashville), Edward Saff (Vanderbilt U, Nashville), Achill
Schürmann (U of Rostock), Robert Womersley (UNSW, Sidney)**

- **Monday, January 17th, 2022**

13:00 – 14:00 **Registration & Welcome**

14:00 – 14:40 **Sergiy Borodachov (Towson U)**

Min-Max Polarization for Certain Classes of Sharp Configurations on the Sphere

14:45 – 15:00 **Coffee break**

15:00 – 15:40 **Peter Dragnev (Purdue U, Fort Wayne) - online**

*Riesz energy problems with external fields and related theory**

15:45 – 16:25 **Ryan Matzke (TU Graz) - online**

Energy Minimization on Projective Spaces via Determinantal Point Processes

16:30 – 17:10 **Alexey Glazyrin (U of Texas, Rio Grande) - online**

Optimal point configurations and measures for multivariate geometric potentials

- **Tuesday, January 18th, 2022**

14:00 – 14:40 **Nando Leijenhorst (TU Delft) - online**

A specialized SDP solver for sums-of-squares problems in discrete geometry

14:45 – 15:00 **Coffee break**

15:00 – 15:40 **Lenny Fukshansky (Claremont McKenna College) - online**

Geometric constructions for sparse integer signal recovery

15:45 – 16:25 **Nathaniel Tenpas (Vanderbilt U, Nashville) - online**

Some Optimal Periodic Point Configurations

16:30 – 17:10 **Andrew Salmon (MIT, Cambridge) - online**

Three point bounds for sphere packing

- **Wednesday, January 19th, 2022**

14:00 – 14:40 **Laurent Bétermin (UCB Lyon)**

Theta functions and optimal lattices for a grid cells model

14:45 – 15:00 **Coffee break**

15:00 – 15:40 **Nihar Gargava (EPF Lausanne)**

Lattice packings through division algebras

15:45 – 16:25 **Mircea Petrache (Pontifical Catholic U of Chile)** - online
Almost-sure recovery of quasi-periodic structures from their random perturbation

16:30 – 17:10 **Chuanming Zong (U of Tianjin)** - online
Characterization of the Three-Dimensional Multiple Tiles

- **Thursday, January 20th, 2022**

14:00 – 14:40 **Carlos Beltran (U of Cantabria)** - online
A Fast Algorithm for Designing Grassmannian Constellations

14:45 – 15:00 **Coffee break**

15:00 – 15:40 **Werner Krauth (ENS Paris)**
Hard-disk packings, fast Markov chains, and the two phase transitions of two-dimensional particle systems

15:45 – 16:25 **Oleksandr Vlasiuk (Vanderbilt U, Nashville)** - online
Optimal polarization and covering on sets of low smoothness

16:30 – 17:10 **Ji Hoon Chun (TU Berlin)** - online
Finite sphere packings in low and high dimensions

- **Friday, January 21st, 2022**

14:00 – 14:40 **Mario Ullrich (JKU, Linz)**
Function values are almost optimal for L_2 -approximation

14:45 – 15:00 **Coffee break**

15:00 – 15:40 **Johann Brauchart (TU Graz)** - online
Spherical Fibonacci Points: Weyl sums, ...

15:45 – 16:25 **Mathias Sonleitner (JKU, Linz)**
A characterization of optimal points for integration on manifolds

16:30 – 17:10 **David Krieg (JKU, Linz)**
Lower bounds for quadrature and recovery in L_2

The event takes place at the Erwin Schrödinger Institute - Boltzmann lecture hall! Online participation is possible via zoom. Zoom coordinates are available on request (secr@esi.ac.at) and after registration until January 16, 2022.