



Weierstrass Institute for
Applied Analysis and Stochastics



Survey on

SPP2265 *Random Geometric Systems*

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From the application text for the SPP:

- Goal: mathematical analysis of effects and phenomena that emerge from an interplay between randomness and geometry
- analysis dominant, but simulations, numerics, statistics and modelling also present
- main focus on the development of new and the refinement of existing methods, and on the creation and analysis of new random spatial models
- substantial further developments into various timely directions, e.g., time-dependent random media, continuous-space modelling, long-range dependence, entire geometries instead of characteristic quantities, introduction of spatiality into mean-field models

The Programme Comitee (PC)

- Nina Gantert (TU München)
- Wolfgang König (WIAS Berlin and TU Berlin)
- Günter Last (Karlsruher Institut für Technologie)
- Peter Mörters (Universität Köln)
- Matthias Sperl (Universität Köln and DLR)

The SPP2265 received for Phase I (Oct 2020 – Sept 2023):

- 24 projects (mostly with one position for a PhD or postdoc)
- travel/guest funds 3000 € per project, funded position and year
- 225 000 € for **workshops** (including the annual conferences)
- 75 000 € for **schools and minicourses**
- 27 000 € for **central coordination**
- 57 600 € for **staff costs for organisation**
- 65 000 € for **start-up funding**
- 38 000 € for **equal-opportunity measures**

Phase I has been formally extended until February 2027.

... and for Phase II (Oct 2023 – ???):

almost the same (no staff funds for orga).

The PC decided to merge the funds for workshops, schools and minicourses, central coordination and start-up funding and devote this (392 000 €) to workshops etc.

- 2-4 Nov 2020, *Stochastic geometry and communications*, WIAS Berlin, hybrid, 0
- 28 Feb – 2 March 2022, *New trends in point process theory*, Karlsruhe, 4 700
- 7-9 March 2022, *Analysis and geometry of point processes*, Bielefeld, 4 800
- 14-17 March, *Random spatial networks*, Bonn, 16 300
- 28 March - 1 April 2022, *Spring School: Random geometric graphs*, Darmstadt, 21 600
- 11-14 April 2022, *First Annual Conference*, WIAS Berlin, 42.100
- 29 June - 1 July, 2022, *Random point processes in statistical physics*, WIAS Berlin, 8 800
- 7-9 September 2022, *Limit theorems for random spatial structures*, Bochum, 3 400
- 12-16 September 2022, *Summer School: Processes on random geometric graphs*, Cologne, 20 700
- 10-11 November 2022, *Reinforcement and statistical mechanics*, TU Munich, 0 s
- 23-25 November 2022, *Stochastic Geometry*, Osnabrück, 1 700
- 13-15 February 2023, *Mathematics and microscopic theory for soft matter systems*, Düsseldorf, 13 800

- 20-22 February 2023, *Hyperuniform structures, rigid point processes and related topics*, Lille (only partially supported by PP2265 with 6 900)
- 22-24 February 2023, *BOS workshop on stochastic geometry*, Osnabrück, 2 300
- 27 February - 2 March 2023, *Branching and interacting particle systems*, Mainz, 6 900
- 27-30 March 2023, *Second Annual Conference*, DLR Cologne, 26 500
- 17-21 July 2023, *Summer School: probability and geometry on configuration spaces*, WIAS Berlin, 32 600
- 31 July – 2 August 2023, *Phase transitions in spatial particle systems*, WIAS Berlin, 11 800
- Fall 2023, *Geometric and topological properties of random algebraic varieties*, Cologne, 12 200
- 29-31 January 2024, *Dynamic random spatial systems*, WIAS Berlin, 2 200 (only partially supported by PP2265)
- 2-3 May, *Spatial stochastics in high dimensions*, Osnabrück, 1 600
- 20-24 May 2024, *Random walks, scaling limits, criticality*, London, 26 200
- 19 June 2024, *2nd workshop on stochastic geometry and point processes*, Dortmund, 1 500

- 26-30 August 2024, *Particle systems in random environments*, Frankfurt, 31 800
- 18-20 September 2024 *Stein's method and stochastic geometry*, Hamburg, 7 300
- 23-27 September 2024 *Long-range phenomena in percolation*, Cologne, 20 900
- 28-30 October 2024 *3rd Annual Conference*, WIAS Berlin, 28 900
- 19-22 November 2024 *Dynamics of point processes and particle systems*, Münster, 11 700
- 29 November 2024 *3rd Workshop on stochastic geometry and point processes*, Osnabrück, 300
- 29-31 January 2025 *Critical behaviour in spatial particle systems*, WIAS Berlin, 6 200
- 17-21 February 2025 *Stochastic processes on random geometries*, Braunschweig, 11 500
- 5-7 March 2025 *Women in random geometric systems*, Munich, 11 500
- 24-28 March 2025 *Spring School Extrema of logarithmically correlated random fields and applications*, Darmstadt, 16 700
- 12-14 May 2025 *Spring School Women in random discrete structures*, Münster, 3 400
- 22 May 25 *Stochastic geometry and point processes*, Münster, 350

- 1-5 June 2025 *Recent advances in evolving and spatial random graphs*, Augsburg, 12 100
- 6-20 June 2025 blue Summer School *PREDICT – PRobabilistic mEthoDs in Complex geomeTry*, Lake Como, 9 700
- 23-26 June 2025 *4th Annual Conference*, WIAS Berlin, 30 400
- 15-17 October 2025 *Recent developments in spatial interacting random systems*, WIAS Berlin, 12 700
- 10 November 2025 *5th Workshop on Stochastic geometry and point processes*, Bochum, 600
- 12 May 2026 *Random geometric systems*, Paderborn 800
- 8-12 June 2026 *23rd Workshop on Stochastic Geometry, Stereology and Image Analysis (SGSIA23)*, Split (only partially supported) 6 000
- 15-18 June 2026 *5th Annual Conference of SPP2265*, DLR Köln, 30 000
- 6-8 July 2026 *Spreading dynamics in random environments*, WIAS Berlin, 5 000
- 6-10 July 2026 *Order and disorder in random geometries: hyperuniformity and topological data analysis*, Reisenburg, 23 000
- 16-18 September 2026 *Women in Random geometric systems*, Osnabrück 6 200
- 22-25 September 2026 *Back to the roots (of polynomials)*, Paderborn, 8 700

- 30 September - 2 October 2026 *Stochastic geometry and point processes in Non-Euclidean spaces*, Münster, 5 000
- 4-6 November 2026 *Recursive structures in branching processes*, WIAS Berlin, 4 000
- 17-19 February 2027 *Heavy-tailed phenomena in random discrete geometries*, Cologne, 12 200
- 21-23 June 2027 *6th Annual Conference*, WIAS Berlin, 30 000

- Officially, Phase I has been extended until February 2027.
- *workshop funds* consumed / awarded in Phase I and II:

2022	124 000
2023	113 000
2024	135 800
2025	103 000
2026	82 500
2027	42 200
- Currently, from the 392 000 € for *workshop funds* of Phase II (this includes *start-up funds* and *central-coordination funds*) there are 94 000 € left.
- From the two times 38 000 € for *equal opportunity*, we used about 21 000 for three women-workshops (11 500, 3 400 and 6 200). There are about 55 000 € left.
- The *start-up funds* plus the *central-coordination funds* of Phase I were used for bridging gaps of 2-5 months for three young SPP-associated researchers (second half of 2023): TU München five months 33 000 €, DLR four months 24 000 €, Uni Düsseldorf five months 33 000 €. This was very difficult to get through and would be even more difficult in future, since the admin of the FVB (the WIAS roof organisation) requires very good arguments.

- 6th Annual Conference: 21-23 June 2027 at Harnack-Haus in Berlin!
- Ideas and orga teams wanted for the 55 000 € equal-opportunity funds!
- Ideas and orga team wanted for big closing event (expected end of 2027 or in 2028)!
- Currently, 280 preprints since Fall 2020 on the SPP2265-homepage.