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Probabilistic methods in quantum field theory

Organizers:

Roland Bauerschmidt, Eveliina Peltola, Ellen Powell, Rémi Rhodes, Eero Saksman

Quantum field theories (QFTs) have been successfully applied, throughout the last 70 years, to model and analyze diverse physical phenomena; in particular, critical behavior in statistical mechanics, and interactions of fundamental particles. However, a rigorous mathematical framework to construct and understand these theories is still limited. This program will further pursue this direction, building on recent developments towards QFT coming from random geometry and probability theory. In particular, the goal is to bring together researchers with different viewpoints and expertise on this multifaceted topic.

We will have the following activities:

School "Probabilistic methods in quantum field theory"
(May 12-16, 2025)

Workshop "Random geometry and its connections to QFT"
(May 19-23, 2025)

Workshop "Integrable QFT: conformal bootstrap, bosonization, near-critical perturbations and Coulomb gas"
(June 23-27, 2025)

Workshop "Gauge theories and spin systems: Yang-Mills theory, continuous symmetry and disorder"
(July 28 - August 1, 2025)



Call for participation: The Hausdorff Research Institute offers visiting positions for the whole period of the trimester program (for senior scientists, postdocs and PhD students). The Due-date for applications **October 31, 2024 (CET)**.

Please send applications (including CV and, for postdocs and PhD students, a letter of recommendation) using our online application form at

TBA

In addition numerous fellowships for shorter periods are available.