

# Aktuelle Veranstaltungen

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## Kolloquium

**Thema:** tba

**Datum:** 01.02.21

**Uhrzeit:** 16:15

**Ort:** cyberspace

**Vortragender:** [JProf. Francesca Cuteri](#)

Goethe-Universität Frankfurt

**Inhalt:**

**Ansprechpartner:** [F. Karsch/TR211](#)

## Kolloquium Mathematische Physik

**Thema:** 15/01/2021 - TBC

**Datum:** 15.01.21

**Uhrzeit:** 16:15

**Ort:** ZOOM/Konferenzschaltung

**Vortragender:** [Simone Warzel](#)

Technical University of Munich

**Inhalt:** TBC

**Ansprechpartner:** [G. Akemann](#)

## Seminar Hochenergiephysik

**Thema:** [Quantum computing quantum field theory problems](#)

**Datum:** 15.12.20

**Uhrzeit:** 14:15

**Ort:** cyberspace

**Vortragender:** [Niklas Mueller](#)

BNL

**Inhalt:** I will present an overview over the exciting field of quantum computation from a high energy / nuclear theory perspective (No hardware, sorry!). After a brief but pedagogical introduction into the basic concepts, and into some of the interesting physics problems, I will try to explain what “quantum computing” a (lattice) field theory problem actually requires one to do: from digitizing the Hilbert space of ones favorite theory to coming up with an algorithm including preparing states and extracting information by measurement. As an example, I will mostly focus on quantum computation of a dynamical problem (scattering) in scalar  $\phi^4$  theory, and will be contrasting the current state-of-the-art approach by Jordan, Lee and Preskill with one we are currently developing. I might talk about quantum computation/simulation of gauge theories, if time permits.

**Ansprechpartner:** [S. Schlichting](#)

## Seminar Kondensierte Materie

**Thema:** [Evaluation der Genauigkeit des Tschebyscheff-Algorithmus zur Bestimmung thermodynamischer Funktionen am Beispiel einer Heisenberg-Spin-Leiter](#)

**Datum:** 11.09.20

**Uhrzeit:** 14:00

**Ort:** ZOOM / Konferenzschaltung

**Vortragender:** [Henrik Schlüter](#)

Universität Bielefeld

**Inhalt:** Es wird eine Einführung in die numerische Berechnung thermodynamischer Funktionen mithilfe des Tschebyscheff-Algorithmus gegeben. Anschließend findet eine Bewertung der Ergebnisse am Beispiel einer Heisenberg-Spin-Leiter in Abhängigkeit der Tschebyscheff-Parameter statt.

**Ansprechpartner:** [Jürgen Schnack](#)

## Seminar Mathematische Physik

**Thema:** **Statistics of Extremes in Eigenvalue-counting Staircases**

**Datum:** 04.06.20

**Uhrzeit:** 16:00

**Ort:** ZOOM / Konferenzschaltung

**Vortragender:** [Yan Fyodorov](#)

King's College London

**Inhalt:** We consider the counting function (“spectral staircase”) for eigenvalues of a random unitary matrix, drawn from the corresponding beta-ensemble. Our goal is to characterize the statistics of maximum deviation of this staircase from its mean slope in a fixed interval, when size of the matrix  $N \gg 1$ . We will show that one-sided extremes can be addressed by exploiting a mapping onto the statistical mechanics of log-correlated random processes and using an extended Fisher-Hartwig conjecture. The resulting statistics exhibits combined features of counting statistics of Fermions with Sutherland-type interaction and extremal statistics of the fractional Brownian motion with Hurst index  $H = 0$ . Some of the features are expected to be universal. The talk is based on the paper Fyodorov-Le Doussal arXiv:2001.04135.

Ansprechpartner: [Gernot Akemann](#)

## Seminar Bielefeld-Melbourne Zufallsmatrizen

**Thema:** [The hole event for Gaussian complex zeros and the emergence of quadrature domains](#)

**Datum:** 02.12.20

**Uhrzeit:** 09:00

**Ort:** ZOOM / Konferenzschaltung

**Vortragender:** [Aron Wennman](#)

Tel Aviv University

**Inhalt:** The Gaussian Entire Function (GEF) is a distinguished random Taylor series with independent complex Gaussian coefficients, whose zero set is invariant with respect to isometries of the plane. The topic of this talk is the zero distribution of the GEF, conditioned on the event that no zero lies in a given (large) region. For circular holes Ghosh and Nishry observed that as the radius of the hole tends to infinity, the density of zeros vanishes not only on the given hole, but also on an annulus beyond the (rescaled) hole — a 'forbidden region' emerges. We are concerned with the shape of the forbidden region for general simply connected holes. I plan to discuss how one can study this problem through a type of constrained obstacle problem, and why the forbidden region belongs to a class of algebraic domains -- the quadrature domains for subharmonic functions. Based on joint work with Alon Nishry.

Ansprechpartner: [Gernot Akemann](#)