

# Aktuelle Veranstaltungen

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## Kolloquium

**Thema:** Vorstellung der Arbeitsgruppen

**Datum:** 21.10.19

**Uhrzeit:** 16:15

**Ort:** H6

**Vortragender:** Arbeitsgruppen der Physik

**Inhalt:**

**Ansprechpartner:** [Fachschaft](#)

## Kolloquium Mathematische Physik

**Thema:** [Relativistic hydrodynamics, heavy-ion collisions, dynamical black holes and resurgent series](#)

**Datum:** 18.10.19

**Uhrzeit:** 16:15

**Ort:** V3-201

**Vortragender:** [Michal P. Heller](#)

**Inhalt:**

The past 12 years has constituted the golden age for theoretical studies of relativistic hydrodynamics. The experimental motivation for these developments came from ultra-relativistic heavy-ion collision at RHIC and LHC accelerators in which the paradigm of strongly-interacting medium modelled hydrodynamically became the working horse for explaining the data. These experimental and phenomenological developments have come hand-in-hand with theoretical progress in understanding relativistic hydrodynamics as an effective description embedded in quantum field theory. In my colloquium I will review the line of thought based on AdS/CFT (holography), an approach to study strongly-coupled quantum field theories using gravitational techniques, focusing on understanding the limits of applicability of relativistic hydrodynamics in far-from-equilibrium quantum field theory. A beautiful spin-off of this analysis is understanding hydrodynamic gradient expansion as a part of a trans-series, which encodes, through resurgence, information about genuinely non-equilibrium excitations of a collective state of matter. Based on a series of works reviewed in arXiv:1610.02023 and arXiv:1707.02282, as well as some later / ongoing work.

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

## Seminar Hochenergiephysik

**Thema:** [Quark Mass Definition and Extraction from \(2+1+1\)-Flavor Lattice QCD](#)

**Datum:** 24.10.19

**Uhrzeit:** 14:15

**Ort:** D6-135

**Vortragender:** [Urs Heller](#)

American Physical Society

**Inhalt:**

I summarize a new heavy quark mass definition, the minimal renormalon subtracted (MRS) mass by the TUM QCD collaboration. It is based on the relation between the heavy quark mass and heavy-light meson masses in heavy quark effective theory. The Fermilab Lattice, MILC, and TUM QCD collaborations then used this new method to extract heavy quark masses using (2+1+1)-flavor HISQ ensembles of the MILC collaboration including ensembles with physical light quarks. I end with showing results on heavy-light pseudoscalar meson decay constants obtained in a similar analysis.

Ansprechpartner: [O. Kaczmarek](#)

## Seminar Kondensierte Materie

**Thema:** [tba](#)

**Datum:** 31.10.19

**Uhrzeit:** 14:15

**Ort:** D5-153

**Vortragender:** Christian Eidecker

Bielefeld University

**Inhalt:**

Ansprechpartner: [Peter Reimann](#)

## Seminar Mathematische Physik

**Thema:** [Critical behaviour and characteristic polynomials of non-Hermitian random matrices](#)

**Datum:** 23.05.19

**Uhrzeit:** 16:15

**Ort:** D5-153

**Vortragender:** [Nicholas Simm](#)

University of Sussex

I will discuss some recent developments regarding the normal matrix model. In particular my interest will be in certain critical models where the limiting support of the

**Inhalt:** eigenvalues can radically change its topology by slightly adjusting an external parameter. I will discuss how aspects of the model can be explicitly mapped to the study of expectations of characteristic polynomials of non-Hermitian random matrices (e.g. Ginibre or truncated unitary). Many of these averages are related to Painlevé transcendents, and by exploiting this, a precise and non-trivial asymptotic expansion of partition functions can be calculated in the critical models. This is joint work with Alfredo Deaño (University of Kent).

**Ansprechpartner:** [Gernot Akemann](#)

## Seminar AG Zufallsmatrizen

**Thema:** [Spectral radius of random matrices with independent entries](#)

**Datum:** 23.10.19

**Uhrzeit:** 16:15

**Ort:** V3-201

**Vortragender:** Johannes Alt

University of Geneva

**Inhalt:** We consider random  $n \times n$  matrices  $X$  with independent and centered entries and a general variance profile. We show that the spectral radius of  $X$  converges with very high probability to the square root of the spectral radius of the variance matrix of  $X$  when  $n$  tends to infinity. We also establish the optimal rate of convergence, that is a new result even for general i.i.d. matrices beyond the explicitly solvable Gaussian cases. The main ingredient is the proof of the local inhomogeneous circular law [arXiv:1612.07776] at the spectral edge. This is joint work with L'{}szl'{} Erd'{}os and Torben Kr'{}uger.

**Ansprechpartner:** [Gernot Akemann](#)