Aktuelle Veranstaltungen

**Kolloquium**

**Thema:** tba

**Datum:** 08.04.19

**Uhrzeit:** 16:15

**Ort:** H6

**Vortragender:** Prof. Aleksandra Radenovic
EPFL Lausanne

**Inhalt:**

**Ansprechpartner:** T. Huser

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**Kolloquium Mathematische Physik**

**Thema:** On symmetry-protected topological states: from free fermions to the Haldane phase

**Datum:** 01.02.19

**Uhrzeit:** 16:15

**Ort:** H6

**Vortragender:** Martin Zirnbauer
Inhalt:

The Nobel-Prize winning Haldane phase of spin-1 antiferromagnetic spin chains is a paradigm for symmetry-protected topological phases. When local charge fluctuations are allowed, there has been a debate: protection by what? My answer is that there exists an adiabatic path to a free-fermion topological phase of class AIII, protected by a particle-hole symmetry. To set the stage, I will review Dyson’s Threefold Way and recall the Tenfold Way of disordered fermions.

Ansprechpartner: G. Akemann

Seminar Hochenergiephysik

Thema: A simple non-perturbative resummation scheme beyond mean-field

Datum: 06.02.19

Uhrzeit: 14:15

Ort: D6-135

Vortragender: Paul Romatschke

Univ. of Colorado, Boulder

Mean-field is a great resummation scheme in quantum field theories, generating a non-perturbative mass term by resumming an infinite number of Feynman diagrams. However, interesting observables such as order/disorder transitions or transport coefficients cannot be accessed by mean-field because they require physics beyond that of non-perturbative mass resummations. Using scalar $\phi^4$ in 1+1 dimensions as an example, I'll present a family of resummation schemes that go beyond mean-field and compare to known "exact" results for the energy density and mass gap as a function of coupling for this theory.

Ansprechpartner: Ch. Schmidt

Seminar Kondensierte Materie

Thema: Coupled Superconducting Qubits
It is well known that the (complex) empirical spectral distribution of a non-Hermitian random matrix with i.i.d. entries will converge to the uniform distribution on the complex disc as the size of the matrix tends to infinity. In this talk, we investigate the rate of convergence to the Circular Law in terms of a uniform, 2-dimensional Kolmogorov-like distance. The optimal rate of convergence is determined by the Ginibre ensemble and is given by $n^{-1/2}$. I will present a smoothing inequality for complex measures that quantitatively relates the Kolmogorov-like distance to the concentration of logarithmic potentials. Combining it with results from local circular laws, it is applied to prove nearly optimal rate of convergence to the circular law with overwhelming probability. Furthermore I will relate the result to other distances, present an analogue for the empirical root measure of Weyl random polynomials with independent coefficients and discuss a possible generalization for products of independent matrices. The talk is based on joint work.
with Friedrich Götze.

Ansprechpartner: Gernot Akemann

Seminar AG Zufallsmatrizen

Thema:  On Kac polynomials and truncations of random orthogonal matrices

Datum:  30.01.19

Uhrzeit:  16:00

Ort:  V3-201

Vortragender:  Mihail Poplavskyi

King's College London

Zeros of random polynomials give a rise to a point process which does look similar to the ones arising in RMT but has no integrable structure. We discuss a long standing problem of finding persistence probability asymptotic behaviour for the family of Kac polynomials of even large degree. We first use imprecise connection to the model of truncations of random orthogonal matrices and calculate persistence probability by using integrability of corresponding RMT model. We then present recent progress in solving another integrable model, namely Gaussian Stationary Process with sech correlations, which was shown in 2002 [Dembo, Poonen, Shao, Zeitouni] to give a precise approximation for Kac polynomials. The talk is based on joint works with M. Gebert (QMUL/UC Davis), G. Schehr (LPTMS).

Ansprechpartner: Gernot Akemann