Upcoming Events

Colloquium

Topic: tba

Date: 14.10.19

Time: 16:15

Place: H6

Guest: Prof. Dr. Christine Silberhorn

Universität Paderborn

Abstract:

Contact person: W. Pfeiffer

Colloquium Mathematical Physics

Topic: Counting bound states: From Weyl to Maximal Fourier Multipliers

Date: 05.07.19

Time: 16:15

Place: V2-200

Guest: Dirk Hundertmark

KIT
Abstract: Deriving precise estimates for bound states has a long history. It ranges from Rayleigh's theory of sound and Weyl's asymptotic to more detailed questions concerning the eigenvalue distribution of Schrödinger operators. We will give a personally biased sketch of some of the history and discuss some new results, including the somewhat surprising fact how tools from harmonic analysis - so-called maximal Fourier multiplier bounds - can help in counting bound states.

Contact person: B. Gentz

Seminar High Energy Physics

Topic: tba

Date: 20.07.20

Time: 14:15

Place: D6-135

Guest: NN

Abstract:

Contact person: NN

Seminar Condensed Matter

Next-neighbor particle-particle interaction of fermions in quasi-one-dimensional flat-band lattices

Topic: Next-neighbor particle-particle interaction of fermions in quasi-one-dimensional flat-band lattices

Date: 22.07.19

Time: 14:15

Place: D5-153
Guest: Simon Tilleke

Bielefeld University

Abstract:

Contact person: Thomas Dahm

Seminar Mathematical Physics

Critical behaviour and characteristic polynomials of non-Hermitian random matrices

Topic: Critical behaviour and characteristic polynomials of non-Hermitian random matrices

Date: 23.05.19

Time: 16:15

Place: D5-153

Guest: 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 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).

Contact person: Gernot Akemann

Seminar AG Zufallsmatrizen

Eigenvalue Spacings of Random Matrices compared to Locations of Buzzard
The territorial behavior of buzzards suggests a repulsion between the nests that may match with the repulsion between complex eigenvalues of non-hermitian random matrices. The Ginibre ensemble and the nearest neighbor spacings of the two-dimensional eigenvalues will be introduced and compared to the Poissonian Process in the plane. Then we will calculate the spacings between buzzard nests and the Kolmogorov distance to both theoretical curves. For this aim, the unfolding of the data set is indispensable, so that areas of high human settlement do not influence the spacing statistics. Two different unfolding methods in 2D will be tested and applied.

**Contact person:** Gernot Akemann