Aktuelle Veranstaltungen

Kolloquium

Thema: tba
Datum: 14.10.19
Uhrzeit: 16:15
Ort: H6
Vortragender: Prof. Dr. Christine Silberhorn
Universität Paderborn

Inhalt:

Ansprechpartner: W. Pfeiffer

Kolloquium Mathematische Physik

Thema: Counting bound states: From Weyl to Maximal Fourier Multipliers
Datum: 05.07.19
Uhrzeit: 16:15
Ort: V2-200
Vortragender: Dirk Hundertmark
KIT
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.

Ansprechpartner: B. Gentz

Seminar Hochenergiephysik

Thema: Measuring peculiar motions in the local universe

Datum: 11.07.19

Uhrzeit: 14:15

Ort: D6-135

Vortragender: Christoph Saulder

Seoul

Peculiar motions are the observational imprint of the ongoing assembly of large structures. In order to measure them, one requires redshift data as well as a redshift-independent distance indicator. To this end, we used the Sloan Digital Sky Survey, which contains photometric and spectroscopic data covering about a quarter of the sky. With this data, we managed to derive the so far largest self-consistent sample of early-type galaxies with redshift-independent distances obtained using the fundamental plane. We compare our results to other large peculiar motion studies and provide an outlook on future expansions of our dataset.

Ansprechpartner: D. Schwarz

Seminar Kondensierte Materie

Thema: The Grover algorithm on a Terbium III quantum processor

Datum: 18.07.19
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 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
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.