Upcoming Events

Colloquium

Topic: tba

Date: 16.04.18

Time: 16:15

Place: H6

Guest: Prof. Hervé Rigneault

Institut Fresnel, Marseille

Abstract:

Contact person: T. Huser

Colloquium Mathematical Physics

Topic: Mesoscopic eigenvalue correlations of random matrices

Date: 01.12.17

Time: 16:00

Place: V2-210/216

Guest: Antti Knowles

University of Geneva
Ever since the pioneering works of Wigner, Gaudin, Dyson, and Mehta, the correlations of eigenvalues of large random matrices on short scales have been a central topic in random matrix theory. On the microscopic spectral scale, comparable with the typical eigenvalue spacing, these correlations are now well understood for Wigner matrices thanks to the recent solution of the Wigner-Gaudin-Dyson-Mehta universality conjecture. In this talk I focus on eigenvalue density-density correlations between eigenvalues whose separation is much larger than the microscopic spectral scale; here the correlations are much weaker than on the microscopic scale. I discuss to what extent the Wigner-Gaudin-Dyson-Mehta universality remains valid on such larger scales, for Wigner matrices and random band matrices.

Contact person: G. Akemann

Seminar High Energy Physics

Topic: Theory and Phenomenology of eV-Scale Sterile Neutrinos

Date: 25.01.18

Time: 14:15

Place: D6-135

Guest: Joachim Kopp

Univ. Mainz

Several anomalies observed in neutrino oscillation experiments have been interpreted as possible hints for the existence of eV-scale sterile neutrinos. In this talk, we critically review these hints and present results from comprehensive global fits. Our results reveal significant tension in the global data set, which motivates us to discuss also alternative explanations for the observed anomalies. In the final part of the talk, we discuss cosmological constraints on light sterile neutrinos and ways to avoid them.

Contact person: D. Schwarz

Seminar Condensed Matter

Brownian motion of an ellipsoidal particle in a tilted periodic potential:
**Topic:** long-term velocity and diffusion

**Date:** 22.02.18

**Time:** 14:15

**Place:** D5-153

**Guest:** Ralf Eichhorn

NORDITA, Stockholm

**Abstract:**

**Contact person:** Peter Reimann

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**Seminar Mathematical Physics**

**Topic:** Eigenvector-related correlation functions and their connection with generalized chiral random matrix ensembles with a source

**Date:** 11.01.18

**Time:** 16:00

**Place:** D5-153

**Guest:** Jacek Grela

LPTMS Université Paris-Sud

We will introduce eigenvector-related correlation functions, discuss briefly their significance in dynamical Ginibre ensemble [1,2] and present asymptotic results in the large matrix size limit. Motivated by recent work [3] on joint eigenvector-eigenvalue correlation function valid for finite matrix size N in the complex and real Ginibre Ensembles, we study integrable structure of a certain generalized chiral Gaussian Unitary Ensemble with a source [4]. This model can be also interpreted as a deformation of the complex Ginibre Ensemble with an external source with additional determinant term. We present compact formulas for the characteristic polynomial, inverse characteristic polynomial and the kernel. In the case of a special source, we calculate

Contact person: Gernot Akemann

Seminar AG Zufallsmatrizen

Exploring the boundaries of universality for Gaussian perturbations of Hermitian matrices

Date: 24.01.18

Time: 14:15

Place: V3-201

Guest: Thorsten Neuschel

University Catholique de Louvain

We explore the boundaries of sine kernel universality for the eigen- values of Gaussian perturbations of large deterministic Hermitian matrices. Equivalently, we study for deterministic initial data the time after which Dyson's Brownian motion exhibits sine kernel correlations. We explicitly describe this time span in terms of the limiting density and rigidity of the initial points. This is joint work with Tom Claeys and Martin Venker.

Contact person: Gernot Akemann