Aktuelle Veranstaltungen

Kolloquium

Thema: Statistical Mechanical Perspectives on Cosmological Puzzles

Datum: 19.04.21

Uhrzeit: 16:15

Ort: cyberspace

Vortragender: Christian Maes

KU Leuven

Inhalt:

Ansprechpartner: P. Reimann

Kolloquium Mathematische Physik

Thema: Integrability and Universality in nonlinear waves

Datum: 05.02.21

Uhrzeit: 16:15

Ort: ZOOM/Konferenzschaltung

Vortragender: Tamara Grava

University of Bristol
What is an integrable system? Intuitively, an integrable system is a dynamical system that can be integrated directly. While in principle integrable systems should be very rare, it happens that in nature, a lot of fundamental systems are integrable such as many models of nonlinear waves, models in statistical mechanics and in theory of random matrices. The study of nonlinear waves has led to many remarkable discoveries, one of them being 'solitons', found some 50 years ago. Solitons motivated the development of the Inverse Scattering Transform (IST). History and some examples will be discussed. Finally I will present some universality results about small dispersion limits and semiclassical limits of nonlinear dispersive waves.

Ansprechpartner: G. Akemann

Seminar Hochenergiephysik

Thema: tba

Datum: 23.03.21

Uhrzeit: 14:15

Ort: D6-135

Vortragender: Marco Drewes

Centre for Cosmology, Particle Physics and Phenomenology - CP3, Louvain-la-Neuve

Ansprechpartner: D. Bödeker

Seminar Kondensierte Materie

Thema: Enhanced Convergence of Quantum Typicality using a Randomized Low-Rank Approximation

Datum: 15.04.21

Uhrzeit: 14:39
Ort: ZOOM / Konferenzschaltung

Vortragender: Phillip Weinberg
Northeastern University Boston

Inhalt:

Ansprechpartner: FOR 2692

Seminar Mathematische Physik

The Character Expansion in effective Theories for chiral Symmetry Breaking

Datum: 03.12.20

Uhrzeit: 16:30

Ort: ZOOM / Konferenzschaltung

Vortragender: Noah Aygün
Universität Bielefeld

Inhalt:

Ansprechpartner: Gernot Akemann

Seminar Bielefeld-Melbourne Zufallsmatrizen

Thema: Random Matrix Model for Non-Stationarity in Complex Systems

Datum: 24.03.21

Uhrzeit: 09:00
Inhalt:

Complex systems are often non-stationary, typical indicators are continuously changing statistical properties of time series. In particular, the correlations between different time series fluctuate. Models that describe the multivariate amplitude distributions of such systems are of considerable interest. We view a set of measured, non-stationary correlation matrices as an ensemble for which we set up a random matrix model. We use this ensemble to average the stationary multivariate amplitude distributions measured on short time scales and thus obtain for large time scales multivariate amplitude distributions which feature heavy tails. We explicitly work out four cases, combining Gaussian and algebraic distributions. For the later we use a determinantal generalization of the Wishart distribution, known as matrix variate t distribution. We also calculate its first and second matrix moments. In summary, we provide, first, explicit multivariate distributions for non-stationary complex systems and, second, a tool that quantitatively captures the degree of non-stationarity in the correlations. We present some first applications to financial data.