Aktuelle Veranstaltungen

Kolloquium

Topological and morphological analysis of random fields with applications to compressible turbulence

Thema: Topological and morphological analysis of random fields with applications to compressible turbulence

Datum: 28.05.18

Uhrzeit: 16:15

Ort: H6

Vortragender: Prof. Anvar Shukorov

Newcastle University

Inhalt: The theory of random functions and techniques of data analysis based on it mostly rely on the Gaussian statistical properties of the underlying random fields. This limitation is becoming less and less acceptable as the resolution, sensitivity and physical complexity of experimental and numerical data increase. Observations and simulations of compressible random flows, especially in astrophysical contexts, provide a good example of this difficulty. This work is motivated by the need to compare with observations the results of comprehensive simulations of turbulence in the interstellar medium. The quantitative methods used at present are largely limited to probability densities and Fourier spectra of random fields. Meanwhile, observations suggest widespread filamentary structures of the interstellar gas to which the available methods are insensitive. We discuss novel methods of data analysis that are applicable to intermittent, strongly non-Gaussian random fields and are based on recent developments in computational topology and morphology or random fields. Particular aspects that will be discussed include the recovery of a three-dimensional structure of a random field from its two-dimensional cross-section and the effects of magnetic field on interstellar turbulence.

Ansprechpartner: D. Schwarz

Kolloquium Mathematische Physik
The numerical range of positive operators

The numerical range of a linear operator $A$ on a Hilbert space $H$ is defined as $W(A) := \{ x \in H, \|x\|=1 \}$. It is well-known that the closure of the numerical range contains the spectrum. Hence, it can be used to localise the spectrum. In this talk, we will first study symmetry properties of the numerical range of positive operators in Hilbert lattices. Then we will investigate various generalisations of the numerical range. It turns out that the numerical range exhibits a certain rotational symmetry which is similar to the rotational symmetry of the spectrum of a positive operator.

Seminar Hochenergiephysik

The QCD crossover up to $O(\mu^6_B)$ from Lattice QCD

The QCD crossover up to $O(\mu^6_B)$ from Lattice QCD
Seminar Kondensierte Materie

Thema: tba
Datum: 24.05.18
Uhrzeit: 14:15
Ort: D5-153
Vortragender: Ben Niklas Balz
Universität Bielefeld

Inhalt:

Ansprechpartner: Peter Reimann

Seminar Mathematische Physik

Eigenvalue-related correlation functions and their connection with generalized chiral random matrix ensembles with a source

Thema: Eigenvector-related correlation functions and their connection with generalized chiral random matrix ensembles with a source
Datum: 11.01.18
Uhrzeit: 16:00
Ort: D5-153
Vortragender: 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

Ansprechpartner: Gernot Akemann

Seminar AG Zufallsmatrizen

Thema:  
tba

Datum:  
27.06.18

Uhrzeit:  
16:15

Ort:  
V3-201

Vortragender:  
Yacin Ameur

Lund University

Inhalt:

Ansprechpartner: Gernot Akemann