Aktuelle Veranstaltungen

Kolloquium

Thema: Sehen wie zum ersten Mal - zur Physik des Alltäglichen

Datum: 03.12.18

Uhrzeit: 16:15

Ort: H6

Vortragender: Prof. Dr. Hans Joachim Schlichting

Universitaet Muenster

Anhand von ganz unterschiedlichen Beispielen wird dargelegt, dass das Alltägliche und Vertraute zu einer neuen Realität werden kann, wenn man lernt, es unter einer physikalischen Perspektive zu sehen. Auf diese Weise kann erfahren werden, dass die Physik nicht nur das zeigt, was wir noch nicht kennen, sondern auch das, was wir kennen, wie wir es noch nicht kennen. Neben einer Bereicherung alltäglicher Wahrnehmungen werden dadurch für Lernende Wiederbegegnungen mit physikalischen Sachverhalten ermöglicht, die aus lerntheoretischer Sicht zur Förderung und Nachhaltigkeit des Gelernten beitragen können.

Ansprechpartner: B. Fromme

Kolloquium Mathematische Physik

Thema: tba

Datum: 01.02.19

Uhrzeit: 16:15
Complex numbers in physics are neither accidental nor just usefull mathematical tools, they appear in fact as fundamental in the set up of quantum theory. One can sometimes redefine, say, Quantum Field Theories as Real Field Theories and relate them to statistical mechanics systems amenable to "ab initio" analysis by well established stochastic algorithms. However, interesting physical questions such as non-equilibrium, dense matter or strong CP breaking bring back an unavoidable complex character, which in the frame of numerical simulations leads to the so-called "sign problem". Since analyses from first principles are of primordial interest in present day physics it is important to design numerical simulations for these cases and this mostly implies working in the complex plane. We shall here review some of the approaches, concentrating on the so-called "Complex Langevin Method" which has been up to date the most thoroughly studied ansatz. We shall present some simple cases and then extend the discussion to the study of realistic physical problems.
Seminar Kondensierte Materie

Thema: tba
Datum: 30.11.18
Uhrzeit: 14:15
Ort: D2-240
Vortragender: Terry Farrelly

Universität Hannover

Inhalt:

Ansprechpartner: Peter Reimann

Seminar Mathematische Physik

Thema: Symmetry Transition from GUE to chGUE protecting Chirality
Datum: 12.07.18
Uhrzeit: 14:15
Ort: D5-153
Vortragender: Mario Kieburg

Bielefeld University

Symmetry transitions of systems have been always of particular interest in physics. There are only few real systems, that are pure and ideal yielding the desired results predicted by simplified, analytically feasible models. This is also the case for the spectral statistics of linear operators corresponding to such realistic systems, which are usually described by random matrices. Especially the global symmetries can be well-captured by random matrices, since the local spectral statistics on the level of the
Inhalt: Symmetry transitions of systems have always been of particular interest in physics. There are only few real systems, that are pure and ideal yielding the desired results predicted by simplified, analytically feasible models. This is also the case for the spectral statistics of linear operators corresponding to such realistic systems, which are usually described by random matrices. Especially the global symmetries can be well-captured by random matrices, since the local spectral statistics on the level of the mean level spacing is extremely sensitive to these symmetries. Therefore, the question arises what the statistics would look like when a symmetry transition takes place to compare these results efficiently with physical measurements. Exactly this has been the goal of my joint work with Takuya Kanazawa when we studied an interpolation between the Gaussian unitary ensemble (GUE) and the chiral Gaussian unitary ensemble (chGUE) while protecting the chirality of the matrix. This transition is motivated by several QCD applications. Particularly the protection of the chirality leads to surprising effects. I am going to report on these results which comprise finite matrix size as well as the limit of large matrix dimensions.

Ansprechpartner: Gernot Akemann

Seminar AG Zufallsmatrizen

Thema: tba

Datum: 28.11.18

Uhrzeit: 16:15

Ort: V3-201

Vortragender: Valentin Gorski

Bielefeld University

Inhalt:

Ansprechpartner: Gernot Akemann