

Aktuelle Veranstaltungen

Kolloquium

Thema: Soft X-ray Spectroscopy of Quantum Materials

Datum: 15.11.22

Uhrzeit: 14:15

Ort: H6

Vortragender: [Prof. Kai Rossnagel](#)

Universität Kiel

Inhalt:

Ansprechpartner: [A. Hütten](#)

Kolloquium Mathematische Physik

Thema: tba

Datum: 04.11.22

Uhrzeit: 16:15

Ort: D5-153

Vortragender: [Lisa Hartung](#)

Universität Mainz

Inhalt:

Ansprechpartner: [G. Akemann](#)

Seminar Hochenergiephysik

Thema: [Fluctuation Determinants in the Presence of Instantons](#)

Datum: 13.10.22

Uhrzeit: 14:15

Ort: D6-135

Vortragender: [Rasmus Nielsen](#)

Bielefeld University

Inhalt: At high temperatures, where the strong coupling parameter runs to small values, the presence of instantons have a significant effect on the QCD vacuum structure. This in turn affects the structure of the partition function at these temperatures, from which a great amount of information about the system can be extracted. However, the presence of instantons complicates computation of the partition function, by way of introducing discrete zero-modes to the path integral. We explain how to generalize the well known Faddeev-Popov gauge-fixing procedure to incorporate these discrete zero-modes, and subsequently how to obtain an expression for the 1-instanton partition function to quadratic order.

Ansprechpartner: [D. Bödeker](#)

Seminar Kondensierte Materie

Thema: **Assigning Temperatures to Eigenstates**

Datum: 04.11.22

Uhrzeit: 14:15

Ort: D5-153

Vortragender: Masudul Haque

TU Dresden

Inhalt: In formulating the statistical mechanics of isolated quantum systems, an inescapable issue is the definition of temperature, which is not a priori defined within closed-system quantum mechanics. We examine and compare different possible ways of assigning temperatures to energies, or equivalently, to eigenstates. The commonly used assignment of temperature is based on the canonical energy-temperature relationship, which depends only on energy eigenvalues and not on the structure of eigenstates. For eigenstates, we consider defining temperature by minimizing the distance between (full or reduced) eigenstate density matrices and canonical density matrices. We show that for full eigenstates, the minimizing temperature depends on the distance measure chosen, and matches the canonical temperature for the trace distance; however the two matrices are not close. With reduced density matrices, the minimizing temperature has fluctuations that scale with subsystem and system size but is apparently independent of distance measure, and in particular limits the two matrices become equivalent.

Ansprechpartner: [FOR2692/Jürgen Schnack](#)

Seminar Mathematische Physik

Thema: tba

Datum: 01.12.22

Uhrzeit: 16:00

Ort: D5-153

Vortragender: [José Gracia Bondia](#)

University of Zaragoza, Spain

Inhalt:

Ansprechpartner: [Gernot Akemann](#)

Seminar Bielefeld-Melbourne Zufallsmatrizen

Thema: [Unitary matrix integrals, spectral form factors, and long range random walk models](#)

Datum: 05.10.22

Uhrzeit: 09:00

Ort: ZOOM / Konferenzschaltung

Vortragender: [Ward Vleeshouwers](#)

University of Amsterdam

Inhalt: Unitary matrix integrals over symmetric functions have a wide variety of applications, including quantum chaos, random processes, enumerative combinatorics, and number theory. In this talk, we derive various novel identities on such integrals, demonstrating universality of the spectral form factor for a broad class of matrix models. We then extend these results and apply them to correlation functions of long-range random walk models, leading to various surprising relations and dualities between them, as well convenient methods for their computation.

Ansprechpartner: [Leslie Molag](#)