Aktuelle Veranstaltungen

Kolloquium

Thema:	[Molecular-level ionizing-radiation matter interactions and their consequences](#)
Datum:	13.12.22
Uhrzeit:	14:15
Ort:	H6
Vortragender:	[Prof. Dr. Arno Ehresmann](#)
	Universität Kassel
Inhalt:	The interaction between ionizing electromagnetic radiation and dense matter and processes following an initial ionization event are fundamental to a variety of important challenges in society and science. If those processes would be fully understood, this could be the basis to develop measures to avoid or cure hazardous effects due to ionizing-radiation exposure of biologically relevant systems, to develop treatments for diseases occurring as consequences of such processes in living entities, or, in a completely different field of science, to understand fundamental processes in astrochemistry. In the presentation I will show how spectroscopy of dispersed fluorescence, electrons and by multi-coincidence methods upon ionization by monochromatized synchrotron and free-electron laser radiation can be used to clarify and quantify those fundamental processes. By increasing the complexity of the investigated systems stepwise from photoionization and photodissociation processes of individual atoms or molecules over processes occurring in clusters towards processes occurring in liquids my group tries to investigate how processes essentially known to us in individual molecules may be changed and which other processes may occur when those molecules are embedded in (approximately) realistic environments.

Ansprechpartner: [T. Kuschel](#)

Kolloquium Mathematische Physik

Thema:	**tba**
Datum:	13.01.23
Uhrzeit:	16:15
Ort:	D5-153
Vortragender:	[Felix Finster]
	Universität Regensburg
Inhalt:	
Ansprechpartner:	[G. Akemann]

Seminar Hochenergiephysik

Thema:	**[Relativistic dynamics in black hole systems and efforts toward the discovery of nano-Hz GWs]**
Datum:	12.12.22
Uhrzeit:	16:15
Ort:	D6-135
Vortragender:	[Prerna Rana]
	TIFR Mumbai

The study of bound particle trajectories around a rotating black hole is crucial to understanding many as- trophysical phenomena. I will present a new closed-form analytic solution for the generalized non-equatorial eccentric bound particle trajectories, and their fundamental frequencies, in the Kerr spacetime using general relativity. The trajectories are expressed in the eccentricity, inverse-latus rectum, spin, and Carter's constant (e, ?, a, Q) parameter space. The generalized solutions also enabled us to obtain the necessary bound orbit conditions for (e, ?, a, Q) and novel specialized formulae for equatorial, spherical, and non-equatorial sepa- ratrix orbits. Next, I will

Inhalt: present the Generalized Relativistic Precession Model (GRPM), which utilizes the analytic solutions of trajectories in the Kerr spacetime, to explain the origin of Quasi-periodic oscillations (QPOs) in black hole X-ray binaries (BHXRB). Our analysis of the plasma fluid flow around a Kerr black hole in the relativistic disk edge suggests that instabilities cause QPOs to originate in a torus region spanned by geodesics. The application of the GRPM will also be shown for X-ray QPOs seen in Seyferts galaxies. Toward the end, I will discuss our recent efforts for the first official data release of the Indian Pulsar Timing Array (InPTA), which will be incorporated into the global effort of the International Pulsar Timing Array (IPTA) consortium to discover nano-Hz gravitational waves emitted by the relativistic supermassive black hole binaries.

Ansprechpartner: D. Schwarz

Seminar Kondensierte Materie

Thema: **Leb wohl, multiplet**

Datum: 16.12.22

Uhrzeit: 14:00

Ort: D5-153

Vortragender: Freunde des Quantenmagnetismus

Cergy, Dresden, Osnabrück und Bielefeld

Inhalt: 14:00 - 14:10 Jürgen Schnack, Leb wohl, multiplet 14:10 - 14:50 Andreas Honecker, Thermodynamic properties of the Shastry-Sutherland model for SrCu2(BO3)2 14:50 - 15:30 Johannes Richter, Thermodynamics of the square-kagome spin-half Heisenberg antiferromagnet 15:30 - 15:45 Kaffeepause 15:45 - 16:30 Heinz-Jürgen Schmidt, Grundzustände klassischer Spinsysteme 16:30 - 16:45 Florian Johannesmann, Jannis Eckseler, Henrik Schlüter, Dynamik im Einmagnonenraum der Sägezahnkette 16:45 - 17:00, Patrick Vorndamme, Kilian Irländer, Dekohärenzabschätzungen mittel unitärer Zeitentwicklung 18:00 Wok & Roll

Ansprechpartner: Jürgen Schnack

Seminar Mathematische Physik

Thema: **tba**

Datum:	19.01.23
Uhrzeit:	16:00
Ort:	D5-153
Vortragender:	Tobias Hartung
	University of Bath
Inhalt:	
Ansprechpartner:	[Gernot Akemann](#)

Seminar Bielefeld-Melbourne Zufallsmatrizen

Thema:	[**Extremal statistics of quadratic forms of GOE/GUE eigenvectors**](#)
Datum:	14.12.22
Uhrzeit:	09:00
Ort:	ZOOM / Konferenzschaltung
Vortragender:	[Ben McKenna](#)
	Harvard University
Inhalt:	We consider quadratic forms evaluated at GOE/GUE eigenvectors, like those studied in the context of quantum unique ergodicity. Under a rank assumption, we show that, in order to compute their extremal statistics, it suffices to replace the eigenvectors with independent Gaussian vectors. By carrying out some representative Gaussian computations, we thus find Gumbel and Weibull limiting distributions for the original problem. Joint work with László Erdös.
Ansprechpartner:	[Gernot Akemann](#)