Upcoming Events

Colloquium

Topic: Antrittsvorlesung tba

Date: 08.10.18

Time: 14:15

Place: H6

Guest: Prof. Dr. Luana Caron

Universität Bielefeld

Abstract:

Contact person: Dekan

Colloquium Mathematical Physics

Upper and lower Lipschitz bounds for the perturbation of edges of the essential spectrum

Topic:  essential spectrum

Date: 01.06.18

Time: 14:15

Place: V3-204

Guest: Ivan Veselic
Let $A$ be a selfadjoint operator, $B$ a bounded symmetric operator and $A+tB$ a perturbation. I will present upper and lower Lipschitz bounds on the function of $t$ which locally describes the movement of edges of the essential spectrum. Analogous bounds apply also for eigenvalues within gaps of the essential spectrum. The bounds hold for an optimal range of values of the coupling constant $t$. This is result is applied to Schrödinger operators on unbounded domains which are perturbed by a non-negative potential which is mostly equal to zero. Unique continuation estimates nevertheless ensure quantitative bounds on the lifting of spectral edges due to this semidefinite potential. This allows to perform spectral engineering in certain situations. The talks is based on the preprint https://arxiv.org/abs/1804.07816

Contact person: G. Akemann

Seminar High Energy Physics

Topic: tba

Date: 23.10.18

Time: 12:15

Place: D6-135

Guest: Stephan Huber

Univ. of Sussex, Brighton

Abstract:

Contact person: D. Bödeker

Seminar Condensed Matter

Topic: Neue Einsichten zu Diffusionsgleichungen

Date: 18.10.18
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 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.
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