



Seminar

Mathematical Physics

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On Non-Hermitian Beta-Ensembles

Log-gases with inverse temperature β are systems with many applications in physics, for example in the theory of superconductors or the fractional quantum Hall effect. For some specific values of β a correspondence to random matrix theory (RMT) is well established. The advantage of this connection is the usage of the RMT methods in the study of those systems. The goal of this talk is the discussion of Log-gases in two dimensions, i.e. in the non-Hermitian case, for more general values of the inverse temperature. Therefore, we study in the first part a model of normal 2×2 matrices with β in $[0,2]$ and discuss whether we find a surmise for the nearest-neighbour spacing distribution of large matrices.

In the second part of the talk we introduce the study of symmetry classes in non-Hermitian RMT. We conjecture that the classes of complex symmetric and complex quaternion matrices can be effectively described by Log-gases in two dimensions with non-integer inverse temperatures.

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Zoom Konferenzschaltung— Please contact Gernot Akemann
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