

Theoriekolloquium

Am **12. Januar 2012** um **14.15 Uhr** in **W2 1-143** hält

Herr Dr. Timo Aspelmeier (Göttingen)

einen Vortrag mit dem Titel

The density of states of the Laplacian on random percolating clusters

Random matrices are a very important tool in the description of many physical phenomena, ranging from transport properties in disordered systems and graph theory to nuclear physics and QCD. Of particular interest is the eigenvalue spectrum of random matrices, for which many results exist. For certain problems, however, the random matrices involved are sparse, and in this case results are much harder to obtain. The main focus of this talk will be a prototype of a sparse random matrix, the random graph Laplacian. For this problem there exists a percolation threshold, below which the random graph consists only of small connected clusters, and above which a giant component appears. Below the threshold, the spectrum can be calculated, and with the help of a useful symmetry the solution below the threshold can be used to construct the solution above the threshold. In addition, the spectrum of the giant cluster alone can be split off and calculated numerically, even directly at the threshold where the weight of the giant cluster is 0. As an application, the Alexander-Orbach conjecture is shown to hold for this problem.

Interessierte sind herzlich eingeladen.

gez. Prof. Andreas Engel