.

Universität zu Köln
Department Mathematik / Informatik
Abteilung Mathematik

Prof. Dr. Peter Mörters
Weyertal 86-90
50931 Köln
Telefon +49 221 470-2891
Telefax +49 221 470-6073

Einladung
zum
Oberseminar Stochastik

Am Mittwoch, 23.10.2024, um **17:45 Uhr**, im Seminarraum 1 (Raum 005) der Abteilung Mathematik, Weyertal 86-90, 50931 Köln spricht:

Dr. Lukas Lüchtrath

(WIAS Berlin)

zum Thema

A random cluster graph

Abstract: A cluster graph is defined as the disjoint union of complete graphs. Put differently, in a cluster graph each connected component forms a clique. In this talk we consider the Erdős–Rényi random graph conditioned on the rare event that it forms a cluster graph. Despite the large deviation character of this object, the random cluster graph generalises set partitions in combinatorics and finds applications in community detection. We study key properties like the number of cliques, typical clique sizes and the number of edges when the number of vertices tends to infinity. We identify a phase transition at $p = 1/2$ where the random cluster graph changes from the complete graph to one with many cliques. We further give some results about the critical window and the sparse regime $p \to 0$. The proofs rely heavily on analytical combinatoric and we present and discuss important key techniques.
Joint work with Martijn Gösgens, Elena Magnanini, Marc Noy, and ´Elie de Panafieu.

Alle Interessenten sind herzlich eingeladen.

Die Dozenten der Stochastik