Institut für Diskrete Mathematik

Combinatorics Seminar

Friday 13th October 12:30

Online meeting (Webex)

Graph reconstruction from small cards

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(TU Delft)

The graph reconstruction conjecture states that each graph G on at least 3 vertices can be reconstructed from the multiset of all induced subgraphs on $n-1$ vertices. Although this conjecture is notoriously difficult, it is easy to reconstruct some information about the graph, e.g. the degree sequence of G and whether G is connected. We study a set-up with smaller induced subgraphs ('small cards'). Using a theorem about the number of positive real roots of a complex polynomial, we show the induced subgraphs on $0.9n$ vertices determine whether an n-vertex graph is connected and we also develop counting techniques to reconstruct trees from subgraphs of size about $8n/9$.

This is based on joint work with Tom Johnston, Alex Scott and Jane Tan.

Meeting link:

https://tugraz.webex.com/tugraz/j.php?MTID=mab523a645de428d5301998280dc510ed

Joshua Erde, Mihyun Kang