

Institut für Diskrete Mathematik

Combinatorics Seminar

Friday 13th May 14:15

Online meeting (Webex)

Covering random graphs with monochromatic components

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Given an r -edge-coloured complete graph K_n , how many monochromatic connected components does one need in order to cover its vertex set? This natural question is a well-known essentially equivalent formulation of the classical Ryser's conjecture which, despite a lot of attention over the last 50 years, still remains open. A number of recent papers consider a sparse random analogue of this question, asking for the minimum number of monochromatic components needed to cover the vertex set of an r -edge-coloured random graph $G(n, p)$.

We discover a very strong connection between this problem and a certain Helly-type local to global hypergraph covering question raised about 30 years ago by Erdős, Hajnal and Tuza. This allows us to obtain a good understanding of the answer to the general problem giving in particular some very surprising answers to questions raised by Bal and DeBiasio; Kohayakawa, Mota and Schacht; Lang and Lo; Girão, Letzter and Sahasrabudhe; and Kohayakawa, Mendonça, Mota and Schülke.

Based on joint works with Korándi and Sudakov and with Bradač.

Meeting link:

<https://tugraz.webex.com/tugraz/j.php?MTID=m40f85343e56ff5051d731ace1bea82e4>

Meeting number: 2731 089 0467

Password: btHRJxCa252

Joshua Erde, Mihyun Kang