

Institut für Diskrete Mathematik

Combinatorics Seminar

Friday 3rd May 12:30

Online meeting (Webex)

Semi-strong colourings of hypergraphs

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A vertex colouring of a hypergraph is c -strong if every edge e sees at least $\min\{c, |e|\}$ distinct colours. Let $\chi(t, c)$ denote the least number of colours needed so that every t -intersecting hypergraph has a c -strong colouring. In 2012, Blais, Weinstein and Yoshida introduced this parameter and initiated study on when $\chi(t, c)$ is finite: they showed that $\chi(t, c)$ is finite whenever $t \geq c$ and unbounded when $t \leq c - 2$. The boundary case $\chi(c - 1, c)$ has remained elusive for some time: $\chi(1, 2)$ is known to be finite by an easy classical result, and $\chi(2, 3)$ was shown to be finite by Chung and independently by Colucci and Gyárfás in 2013. In this talk, we present some recent work with Kevin Hendrey, Freddie Illingworth and Nina Kamčev in which we fill in this gap by showing that $\chi(c - 1, c)$ is finite in general.

Meeting link:

<https://tugraz.webex.com/tugraz/j.php?MTID=m8500c46344212abf0fa37925da5ef9bf>

Joshua Erde, Mihyun Kang