

Institut für Diskrete Mathematik

Combinatorics Seminar

28.11.2025, 12:30

Online meeting (Webex) & AE06, Steyrergasse 30

The factorization norm and an inverse theorem for MaxCut

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In this talk, we will present a proof of the fact that Boolean matrices with bounded γ_2 -norm or bounded normalized trace norm must contain a linear-sized all-ones or all-zeros submatrix, verifying a conjecture of Hambardzumyan, Hatami, and Hatami. We will also discuss further structural results about Boolean matrices of bounded γ_2 -norm and applications in communication complexity, operator theory, spectral graph theory, and extremal combinatorics.

As a key application, we establish a theorem for MaxCut which contrasts a celebrated result of Edwards. In particular, we show that if the MaxCut of G is at most $m/2 + O(\sqrt{m})$, then G must contain a clique of size $\Omega(\sqrt{m})$.

This talk regards joint work with Lianna Hambardzumyan and István Tomon.

Webex link:

<https://tugraz.webex.com/tugraz/j.php?MTID=maf534adc0b2d38dd1859e16cbc8d5f84>

Mihyun Kang, Ronen Wdowinski