Graz University of Technology

Institut für Diskrete Mathematik

Combinatorics Seminar

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Online meeting (Webex) & AE06, Steyrergasse 30

Information-theoretic thresholds for threshold group testing

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In the Threshold Group Testing (TGT) problem, one aims to exactly recover a sparse binary vector, using as few tests (or queries) as possible. Each test is applied to a subset of the coordinates and returns a positive result if the number of ones in that subset meets or exceeds a specified threshold, and returns a negative result otherwise. We investigate how information-theoretic thresholds of Threshold Group Testing compare to Binary Group Testing, which corresponds to a threshold of one in our setting. Moreover, we analyse the impact of increasing the threshold on the required number of tests. Our main contribution is the derivation of explicit information theoretic upper and lower bounds on the minimum number of non-adaptive tests for item-regular designs.

The talk is based on joint work with Remco van der Hofstad and Connor Riddlesden.

Webex link:

https://tugraz.webex.com/tugraz/j.php?MTID=m6449da69552289b0d7eef2d0d2a27197

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