

UNIVERSITY OF DELAWARE
DEPARTMENT OF MATHEMATICAL SCIENCES
DISCRETE MATHEMATICS SEMINAR

Thursday, November 19th, 2004, 3pm, Room 210 Ewing Hall

Some exactness results for the hypergraph Turan problem

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For a k -graph F , the Turan function $ex(n, F)$ is the maximum size of an F -free k -graph on n vertices. In general, it is notoriously hard to determine.

Even if we know $ex(n, F)$ asymptotically, the exact computation might turn out to be a difficult task. For example, there was a considerable time gap between the asymptotic and exact computations for the expanded triangle or the Fano plane.

We will discuss an approach for proving exactness results which is based on the ideas of Keevash, Sudakov, and others. We will compute $ex(n, H_k^l)$ exactly, thus proving a conjecture of Mubayi. The k -graph H_k^l is obtained from the complete 2-graph K_2^l by enlarging each edge with a new set of size $k - 2$.