

Meeting: 999, Nashville, Tennessee, SS 14A, Special Session on Graph Theory and Matroid Theory

999-05-284 **Mikós Ajtai** (ajtai@almaden.ibm.com), IBM Research Center, San Jose, CA, **János Komlós** (komlos@math.rutgers.edu), Department of Mathematics, Rutgers University, New Brunswick, NJ, **Miklós Simonovits*** (miki@renyi.hu), Hungarian Academy of Sciences, Budapest, Hungary, and **Endre Szemerédi** (szemered@cs.rutgers.edu), Department of Computer Science, Rutgers University, New Brunswick, NJ. *Asymptotic solution of the Erdős-T. Sós conjecture.*

We shall sketch a proof of a weakening of the Erdős-T. Sós conjecture. The conjecture states that if T_k is a fixed tree of k vertices, then every graph G_n of n vertices and

$$e(G_n) > \frac{1}{2}(k-2)n$$

edges contains T_k . Our Main Theorem asserts that for every $\eta > 0$ there exists an integer $n_0(\eta)$ such that if $n, k > n_0(\eta)$ and a graph G on n vertices contains no T_k then

$$e(G_n) \leq \frac{1}{2}(k-2)n + \eta n.$$

The proof is rather complicated. Using an even more involved proof (but along the same lines) we can prove the sharp version ($\eta = 0$) as well. (Received August 25, 2004)