1040-05-168 **Miklos Ajtai**, **Janos Komlos** and **Miklos Simonovits*** (miki@renyi.hu), Alfred Renyi Math. Institute, 1053 Realtanoda u. 13-15, Budapest, Hungary, and **Endre Szemeredi**. *The exact solution of the Erdős-T. Sós conjecture.* Preliminary report.

This is the second lecture on the proof of the Erdős-T. Sós conjecture: If T_k is a fixed tree of k vertices, then every graph G_n of n vertices and

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

edges contains T_k.

Our main result is that if k is large, then the conjecture holds.

In the first part Endre Szemerédi sketches a proof of the weakened Erdős-T. Sós conjecture, according to which 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

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

That proof, combined with some stability methods shows that in most cases either we know that $T_k \subseteq G_n$ even under the weaker condition (1) or we can prove that the structure of G_n is very near to the conjectured extremal graphs: it is the union of small complete blocks or some complete bipartite graphs. Then, for $k > k_0$, applying some elementary arguments, we can embed T_k into G_n. (Received February 07, 2008)