1090-05-281 **Jozsef Solymosi*** (solymosi@math.ubc.ca), 1984 Mathematics Road, Vancouver, BC V6T1Z2, Canada. *On Erdős' unit distances problem.* Preliminary report.

In 1946 Erdős asked what is the maximum number of unit distances determined by a set of n points in the plane. He conjectured that the maximum is $o(n^{1+\varepsilon})$. The best upper bound is 30 years old, it is due to Spencer, Szemerédi, and Trotter who proved that the number of unit distances is $O(n^{4/3})$. In this talk we briefly review some results related to the problem. We illustrate why the $n^{4/3}$ bound is so hard to break and we mention some special cases when it is possible to show a $o(n^{1+\varepsilon}$ type bound. (Received March 04, 2013)