1139-05-427 **Ben Lund*** (lund.ben@gmail.com). *Geometric methods for sum-product problems.*

Erdős and Szemerédi conjectured that, for any finite set A of integers, either the set of sums of pairs of elements of A is nearly as large as possible, or the set of products of pairs of elements of A is nearly as large as possible. This is known as the sum-product conjecture, and many variations have been studied. For finite sets of real or complex numbers, the best results have been obtained by using a geometric approach first developed by Solymosi, and later improved by Konyagin and Shkredov. I will discuss these methods, in the context of giving lower bounds on the size of $(A+A)/(A+A)$. (Received February 18, 2018)