1135-52-870 **J De Loera*** (deloera@math.ucdavis.edu), Dept of Mathematics, University of California, Davis, CA 95616, and **Thomas Hogan**, **Frederic Meunier** and **Nabil Mustafa**. *Radon and Tverberg's theorem with concrete coordinates.* Preliminary report.

Let $a_1, ..., a_n$ be points in R^d. If the number of points n satisfies $n > (d+1)(m-1)$, then they can be always be partitioned into m disjoint parts $A_1, \ldots, A_m$ in such a way that the m convex hulls $\operatorname{conv} A_1, \ldots, \operatorname{conv} A_m$ have a point in common. This is Tverberg's theorem. My talk will discuss a fascinating way to interpret Tverberg's theorem, now with a view toward number theory, lattices, integer programming, all things discrete not continuous nor topological:

Given a discrete set S of R^d (e.g., a lattice, or the Cartesian product of the prime numbers), we study the minimum number of points of S needed to guarantee the existence of an m-partition of the points $A_1, \ldots, A_m$ such that the intersection of the m convex hulls of the parts contains at least k points of S. This is joint work with T. Hogan, F. Meunier, N. Mustafa. (Received September 15, 2017)