On the Mordell-Gruber Spectrum

Barak Weiss (Ben Gurion University)

The Mordell constant of a $d$-dimensional unimodular lattice is defined to be $2^{-d}\sup\text{vol}(V)$, where $V$ ranges over all symmetric boxes with sides perpendicular to the axes, containing no nonzero lattice points. The Mordell Gruber spectrum is the set of all possible values for this constant, over all lattices in dimension $d$. In joint work with Uri Shapira we give a dynamical interpretation of the Mordell constant in terms of the action of the diagonal group on the space of lattices, and use dynamical results for this action to obtain new information about the spectrum.