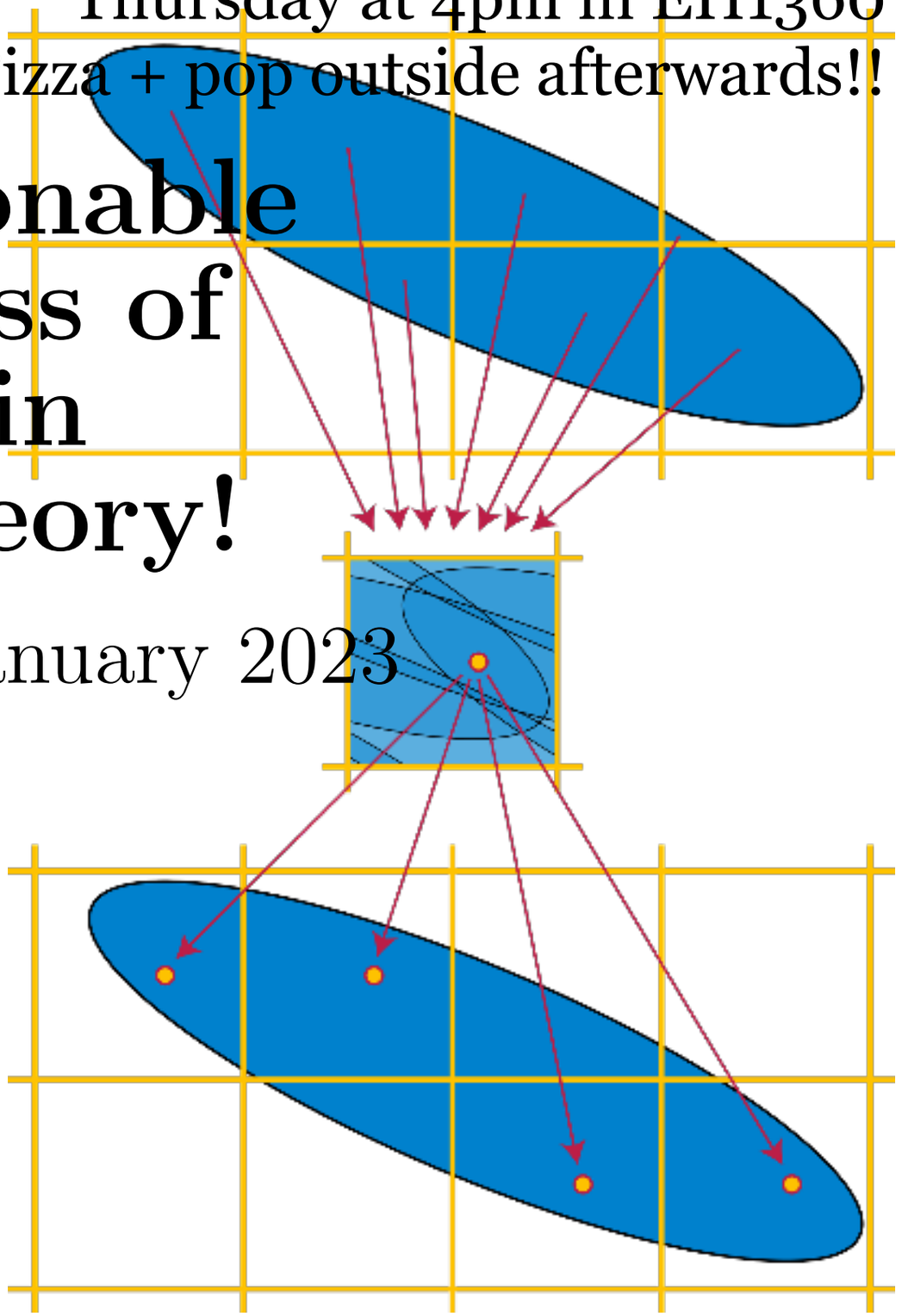
Michigan Math Club

Thursday at 4pm in EH1360
Pizza + pop outside afterwards!!



The unreasonable effectiveness of lattices in number theory!

Asaf Katz 26 January 2023

A landmark result in number theory is Fermat's theorem, which says that any prime p which is congruent to 1 modulo 4 is the sum of two squares $x^2 + y^2 = p$. A result of the same spirit by Lagrange states that any positive integer n is the sum of four squares $x^2 + y^2 + z^2 + w^2 = n$.

We will discuss the surprising connections between these theorems and study of lattices in the plane, specifically Minkowski's theorem about existence of lattice points in convex bodies.