

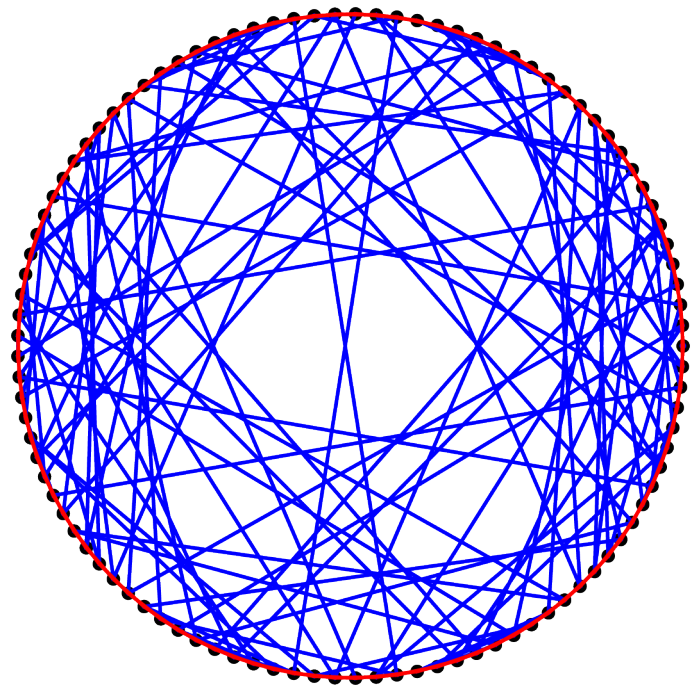
# The Oliver Club

[www.math.cornell.edu/~oliver/](http://www.math.cornell.edu/~oliver/)

**Alex Kontorovich**, Yale University

## ***Local-Global Principles in Orbits***

*We will discuss some natural problems in arithmetic which can be (re)formulated as local-global principles for orbits of certain “thin” semigroups of integer matrix groups. Applications include partial progress towards Zaremba’s conjecture and McMullen’s “Arithmetic Chaos” Conjecture on the ubiquity of “low-lying” closed geodesics on the modular surface defined over a given number field. The main tools are expander graphs, bilinear forms, and bounds for exponential sums.*



*This is joint work with Jean Bourgain.*

Thursday, October 17, 2013  
at 4:00 PM in 532 Malott Hall

Refreshments will be served at 3:30 PM in the Mathematics Department lounge (532 Malott Hall).