Yuri Zarhin (Penn State). *Finite linear groups, invariant lattices and elliptic curves.*

Abstract. Let V be a finite-dimensional complex vector space and let G be an irreducible finite subgroup of $GL(V)$. For a G-invariant lattice L in V of maximal rank, we study the complex torus V/L. It turns out that for a wide class of groups, V/L is isogenous to a self-product of an elliptic curve, and in many cases V/L is even isomorphic to a product of mutually isogenous elliptic curves X with non-trivial endomorphisms (complex multiplication). On the other hand, there are G and L such that the complex torus V/L is *not* an abelian variety (i.e., it could *not* be embedded into the complex projective space of any dimension) but one can always replace L by another G-invariant lattice D such that V/D is a product of elliptic curves with complex multiplication.

This is a joint work with Vladimir Popov (Steklov Inst., Moscow).