



Departmental PhD Thesis Exam

Tuesday, April 29th, 2025 at 10:00 a.m. (sharp)
via Zoom / BA6183

PhD Candidate : Feodor Kogan

Supervisor : George Elliott

Thesis title : Groupoid Models of Irrational Rotation Algebras



Abstract

It is known that every classifiable C^* -algebra has at least countably many non-isomorphic groupoid models. We explore this phenomena for irrational rotations algebras by restricting the Kronecker flow on the torus to various transversals and analyzing what happens to the dynamics under the action of $SL_2(\mathbb{Z})$. By "decoupling" bouquets of circles within the torus we produce new groupoids and then proceed to study their invariant measures and equivalences. This allows us to produce groupoid models of irrational rotation algebras, whose object spaces are arbitrary finite disjoint unions of circles. These constructions allows us to see projections in the algebra in a geometric fashion and provide an example of how Rieffel-Morita equivalence of C^* -algebras can be produced from equivalence of groupoids.