IMU meeting 2021
Algebra session

14:00-15:00 Eyal Subag (Bar Ilan University)

Title: Algebraic symmetries of the hydrogen atom.

Abstract: In this talk we will examine symmetries of the hydrogen atom from two related algebraic perspectives. The first is in the context of algebraic families of groups. The second comes from a new suggested model for the Schrödinger equation of the hydrogen atom within the algebra of differential operators on a complex null cone. Time permitting, I will discuss related questions in representation theory of SL(2,R).
This talk is based on joint work with J. Bernstein and N. Higson.

15:30-16:30 Danny Neftin (Technion)

Title: The parametric dimension
Abstract: The essential dimension measures the complexity of algebraic objects, such as field extensions, central simple algebras, etc. The parametric dimension, an arithmetic analogue, measures the complexity of those objects defined over the rationals.
We estimate parametric dimensions using a local to global approach, and produce lower bounds that turn out to be sharp for various types of objects.

17:00-18:00 Dani Szpruch (Open University)

Title: On certain p-adic arithmetic factors and their relations

Abstract: Tate gamma factor, Weil Index and the metaplectic gamma factor are three arithmetic factors defined over p-adic fields. In this talk we shall recall their definition and discuss some of their roles in representation theory. We shall give simple proofs for their subtle relations emphasizing the analogy to classical identities involving Gauss sums defined over finite fields.