MANTIS SPEAKERS (IN ORDER OF APPEARANCE)

(ALL TIMES IN EDT)

10:00am – 11:00am
Speaker: Stefan Patrikis

Title: Lifting Galois representations

Abstract: I will survey joint work with Najmuddin Fakhruddin and Chandrashekhar Khare in which we prove in many cases existence of geometric p-adic lifts of "odd" mod p Galois representations, valued in general reductive groups. Then I will discuss applications to modularity of reducible mod p Galois representations, including most cases of a generalization of Serre's modularity conjecture to reducible (but not necessarily indecomposable) odd two-dimensional representations of the Galois group of $\mathbb{Q}$.

11:15am – 12:15pm
Speaker: Jennifer Balakrishnan

Title: Quadratic Chabauty for modular curves

Abstract: We describe how p-adic height pairings can be used to determine the set of rational points on curves, in the spirit of Kim's nonabelian Chabauty program. In particular, we discuss what aspects of the quadratic Chabauty method can be made practical for certain modular curves. This is joint work with Netan Dogra, Steffen Mueller, Jan Tuitman, and Jan Vonk.

2:30pm – 3:30pm
Speaker: Akhil Mathew

Title: Syntomic cohomology and p-adic nearby cycles

Abstract: I will give an introduction to syntomic cohomology, and will survey some of the comparisons between syntomic cohomology and p-adic nearby cycles. Then I will explain how the theory of prismatic cohomology enables one to obtain integral refinements to those comparisons. (Joint with Bhargav Bhatt.)

3:45pm – 4:45pm
Speaker: Nicole Looper

Title: Good reduction in families of dynamical systems

Abstract: In this talk, I will discuss various notions of good reduction in arithmetic dynamics, and relate them to some key problems surrounding families of dynamical systems on projective space over a number field K. Of particular interest are the local heights of these maps, and the possible formulations of these heights, as well as finiteness theorems for families of maps with good reduction outside a given finite set of places of K. An auxiliary goal is to draw comparisons with the setting of abelian varieties, and to discuss interesting open problems in view of the loose dictionary that allows for this comparison.