

Title: *Dynamics of Group Action on Varieties*

Presenter: Cigole Thomas, Colorado State University

Abstract: In this talk, we will be exploring the “symmetry” or “shape” of a “set” as the size of the set gets increasingly bigger by applying a collection of transformations to the set. Varieties are objects that arise as simultaneous zero sets of a collection of polynomials. The “sets” considered here are *character varieties* - equivalence classes of homomorphisms - while the set of transformations is an outer automorphism group. For a specific finitely generated group, F , and a complex reductive *algebraic group*, G - group with a variety structure - we explore the dynamics of the action of $\text{Out}(F)$ on the G -character variety of F (read as equivalence classes of homomorphisms from F to G). In particular, we will be working with the finite field points of this variety. The talk will be accessible to a general audience and will not assume any knowledge of algebraic geometry.

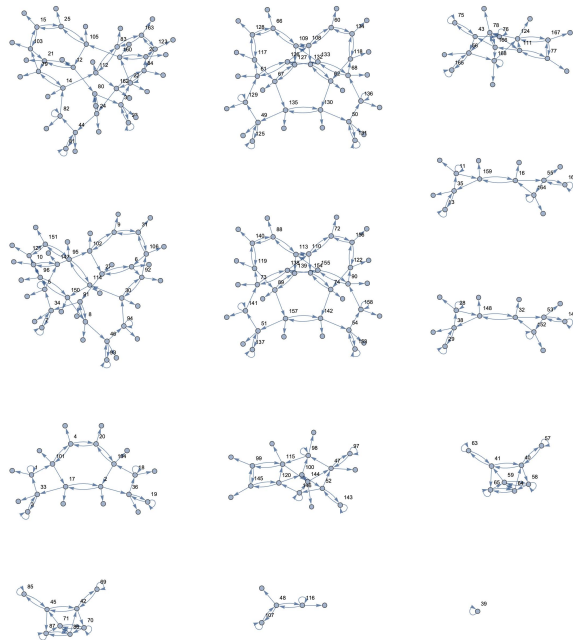


Figure 1: Orbits of outer uutomorphism group action on the finite field points of a specific character variety