

MEGL Project Proposal: Arithmetic Orbits

Team: Sean Lawton, 1 graduate student, 2+ undergraduate students

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This project continues the study of the dynamics of the outer automorphism group of a free group F on the finite field points of the space of representations of F . We are interested in two main problems (1) understanding the length of the largest orbit and which classes achieve it, and also (2) defining and proving the action is "ergodic" in this arithmetic setting. Additionally we are working on creating, in 3D print and VR, visualizations of this family of dynamical systems.

There has been some recent interest in this problem from other researchers and we have also been investing time in reading the work and methods of these other researchers.

