Monday June 12

10:30 - 12:30

Speaker: David Treumann

Title: Deligne-Lusztig varieties as moduli spaces of sheaves

Abstract: Deligne-Lusztig theory organizes most of the irreducible characters of a finite group G of Lie type of into "series," that are indexed by conjugacy classes of maximal abelian subgroups T of G. The representations in one series are those that appear in the cohomology of an F_p-bar-variety X equipped with an action of the finite group G x T. A basic result of Deligne and Lusztig is "orthogonality", which tells e.g. that representations in the series corresponding to T are different from representations in the series corresponding to T-prime, when T is not conjugate to T-prime. It is proved by analyzing a stratification of the quotient (X times X-prime)/G. I will explain how the varieties X and (X times X-prime)/G, and this stratification, arise as moduli spaces of constructible sheaves on a topological annulus. They have something in common with moduli spaces of connections on Cˆ* with irregular singularities at zero and infinity.