

Title: Counting Automorphic Forms

Abstract:

In this talk, I shall present a method for producing new upper bounds for the dimension of certain cohomology groups of arithmetic quotients of symmetric spaces. Suitably interpreted, these results give new upper bounds for spaces of automorphic forms of cohomological type. After explaining why non-trivial lower bounds are (in general) impossible to obtain, I will discuss how p -adically completed spaces of torsion classes can conjecturally be used as a substitute for classical automorphic forms in order to produce large families of Galois representations. This is joint work with Matthew Emerton.