Philadelphia Area Number Theory Seminar

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Applications of the Endoscopic Classi cation to Statistics of Cohomological Automorphic Representations on Unitary Groups

Abstract: Starting from the example of classical modular modular forms, we motivate and describe the problem of computing statistics of automorphic representations. We then describe how techniques using or built o of the Arthur{Selberg trace formula help in studying it.

Finally, we present recent work on one particular example: consider the family of automorphic representations on some unitary group with xed (possibly non-tempered) cohomological representation $_{0}$ at in nity and level dividing some nite upper bound. We compute statistics of this family as the level restriction goes to innity. For unrami ed unitary groups and a large class of $_{0}$, we are able to compute the exact leading term for both counts of representations and averages of Satake parameters. We get bounds on our error term similarror