Philadelphia Area Number Theory Seminar

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Applications of the Endoscopic Classification 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 fixed (possibly non-tempered) cohomological representation π_0 at infinity and level dividing some finite upper bound. We compute statistics of this family as the level restriction goes to infinity. For unramified unitary groups and a large class of π_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