M. Gurevich

Dept. of Mathematics, Weizmann Institute of Science, Rehovot 7610001, Israel
max.gurevich@weizmann.ac.il

A Distributional Treatment of Relative Mirabolic Multiplicity One

We study the role of the mirabolic subgroup P of $G = \mathbf{GL}_n(F)$ (F a p-adic field) for smooth irreducible representations of G that are distinguished relative to a subgroup of the form $H_k = \mathbf{GL}_k(F) \times \mathbf{GL}_{n-k}(F)$. We show that if a non-zero H_1-invariant linear form exists on a representation, then the a priori larger space of $P \cap H_1$-invariant forms is one-dimensional. When $k > 1$, we give a reduction of the same problem to a question about invariant distributions on the nilpotent cone tangent to the symmetric space G/H_k. Some new distributional methods for non-reductive groups are developed.

Keywords: Distinguished representations, p-adic symmetric spaces, mirabolic subgroup, invariant distributions.

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