

THE POLYNOMIAL CONJECTURE FOR MONOMIAL REPRESENTATIONS OF DISCRETE TYPE OF AN EXPONENTIAL SOLVABLE LIE GROUP

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Abstract:

Aligning with Harish-Chandra's pioneer works on the representation theory of reductive Lie groups, I will define the notion of a monomial representation $\tau = \text{ind}_H^G \chi$ of discrete type, where $G = \exp \mathfrak{g}$ is an exponential solvable Lie group, H an analytic subgroup of G , and χ a unitary character of H . I will then talk about the related Plancherel theory and consider the polynomial conjecture, stating that the algebra $D_\tau(G/H)$ of G -invariant differential operators over the line bundle associated with the data (G, H, χ) consists of a polynomial ring, isomorphic to the algebra $\mathbb{C}[\Gamma_\tau]^H$ of H -invariant polynomial functions on an affine subspace $\Gamma_\tau \subset \mathfrak{g}^*$.

This is a joint work with H. Fujiwara and J. Ludwig.