Journal of Lie Theory 22 (2012) 481–487

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Admissibility for Monomial Representations of Exponential Lie Groups

Let G be a simply connected exponential solvable Lie group, H a closed connected subgroup, and let τ be a representation of G induced from a unitary character χ_f of H. The spectrum of τ corresponds via the orbit method to the set $G \cdot A_\tau/G$ of coadjoint orbits that meet the spectral variety $A_\tau = f + \mathfrak{h}^\perp$. We prove that the spectral measure of τ is absolutely continuous with respect to the Plancherel measure if and only if H acts freely on some point of A_τ. As a corollary we show that if G is nonunimodular, then τ has admissible vectors if and only if the preceding orbital condition holds.

Keywords: Exponential Lie groups, coadjoint orbits, monomial representations.

MSC: 22E25, 22E27