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Homological Finiteness of Representations of Almost Linear Nash Groups

Let G be an almost linear Nash group, namely, a Nash group that admits a Nash homomorphism with finite kernel to some $\mathrm{G}L_k(\mathbb{R})$. A smooth Fréchet representation V with moderate growth of G is called homologically finite if the Schwartz homology $\mathrm{H}_i^{\mathcal{S}}(G;V)$ is finite dimensional for every $i \in \mathbb{Z}$. We show that the space of Schwartz sections $\Gamma^{\varsigma}(X,\mathrm{E})$ of a tempered G-vector bundle (X,E) is homologically finite as a representation of G, under some mild assumptions.

Keywords: Schwartz homology, tempered vector bundle, Schwartz sections, homological finiteness.

MSC: 22E41.