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Character amenability and contractibility of some Banach algebras on left coset spaces.

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Summary: Let H be a compact subgroup of a locally compact group G , and let μ be a strongly quasi-invariant Radon measure on the homogeneous space G/H . In this article, we show that every element of $\widehat{G/H}$, the character space of G/H , determines a nonzero multiplicative linear functional on $L^1(G/H, \mu)$. Using this, we prove that for all $\phi \in \widehat{G/H}$, the right ϕ -amenability of $L^1(G/H, \mu)$ and the right ϕ -amenability of $M(G/H)$ are both equivalent to the amenability of G . Also, we show that $L^1(G/H, \mu)$, as well as $M(G/H)$, is right ϕ -contractible if and only if G is compact. In particular, when H is the trivial subgroup, we obtain the known results on group algebras and measure algebras.

MSC:

[43A20](#) L^1 -algebras on groups, semigroups, etc.

[46H05](#) General theory of topological algebras

[43A07](#) Means on groups, semigroups, etc.; amenable groups

Keywords:

Banach algebra; homogeneous space; character amenability

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