

Solomko, Anton V.

New spectral multiplicities for ergodic actions. (English) Zbl 1254.37003
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Author's abstract: Let G be a locally compact second countable abelian group. Given a measure preserving action T of G on a standard probability space (X, μ) , let $\mathcal{M}(T)$ denote the set of essential values of the spectral multiplicity function of the Koopman representation U_T of G defined in $L^2(X, \mu) \ominus \mathbb{C}$ by $U_T(g)f := f \circ T_{-g}$. If G is either a discrete countable Abelian group or $\mathbb{R}^n, n \geq 1$, it is shown that the sets of the form $\{p, q, pq\}, \{p, q, r, pq, pr, qr, pqr\}$ etc. or any multiplicative (and additive) subsemigroup of \mathbb{N} are realizable as $\mathcal{M}(T)$ for a weakly mixing G -action T .

Reviewer: [Alexander Kachurovskij \(Novosibirsk\)](#)

MSC:

37A15 General groups of measure-preserving transformations and dynamical systems Cited in 1 Document

37A30 Ergodic theorems, spectral theory, Markov operators

Keywords:

spectral multiplicity; ergodic action; (C,F)-construction; Poisson suspension

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