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Dilation theory for right LCM semigroup dynamical systems. (English)  Zbl 07413030

Summary: This paper examines actions of right LCM semigroups by endomorphisms of $C^*$-algebras that encode an additional structure of the right LCM semigroup. We define contractive covariant representations for these semigroup dynamical systems and prove a generalized Stinespring’s dilation theorem showing that these representations can be dilated if and only if the map on the $C^*$-algebra is unital and completely positive. This generalizes earlier results about dilations of right LCM semigroups of contractions. In addition, we also give sufficient conditions under which a contractive covariant representation of a right LCM system can be dilated to an isometric representation of the boundary quotient.

MSC:
46L55 Noncommutative dynamical systems
47A20 Dilations, extensions, compressions of linear operators

Keywords:
dilation; semigroup; dynamical system; right LCM

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References:

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