

# A survey on projective regular representations and dilations of projective isometric representations

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## Abstract

The first part of this paper is devoted to a description of projective regular representations and the relationship between these representations and ordinary representations. [Kleppner]

In the second part of the paper we present Murphy's proof of a dilation theorem more general than that proved by Laca and Raeburn. Murphy applied the theory which involves positive definite kernels and their Kolmogorov decompositions to obtain the Laca-Raeburn dilation theorem. [Murphy]

We also present Heo's dilation theorems for projective representations, which generalize Stinespring's dilation theorem for covariant completely positive maps as well as Naimark-Sz-Nagy characterization of positive functions and the construction of a representation of a right Hilbert  $C^*$ -module for a strictly  $u$ -covariant and completely positive map. [Heo]