

Homogeneous operators

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Abstract

A bounded linear operator T is said to be homogeneous if there exists a unitary operator U_φ such that $\varphi(T) = U_\varphi^* T U_\varphi$ for all bi-holomorphic automorphisms φ of the unit disc which are holomorphic in some open neighborhood of the spectrum $\sigma(T)$. If T is irreducible then it is possible to choose a unitary U_φ such that $\varphi \rightarrow U_\varphi$ is a projective unitary representation of the automorphism (bi-holomorphic) group of the unit disc. The notion of homogeneity is closely related to the imprimitivity of Mackey. It coincides with it if one assumes that the operator T in question is normal. In general, homogeneity involves a homomorphism of a function algebra rather than a $*$ -homomorphism, as in the case of imprimitivity. We describe all the homogeneous operators of rank n in the Cowen-Douglas class. This is joint work with A. Korányi