



Mathematics > Operator Algebras

A local global principle for regular operators in Hilbert C^* -modules

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Hilbert C^* -modules are the analogues of Hilbert spaces where a C^* -algebra plays the role of the scalar field. With the advent of Kasparov's celebrated KK-theory they became a standard tool in the theory of operator algebras. While the elementary properties of Hilbert C^* -modules can be derived basically in parallel to Hilbert space theory the lack of an analogue of the Projection Theorem soon leads to serious obstructions and difficulties. In particular the theory of unbounded operators is notoriously more complicated due to the additional axiom of regularity which is not easy to check. In this paper we present a new criterion for regularity in terms of the Hilbert space localizations of an unbounded operator. We discuss several examples which show that the criterion can easily be checked and that it leads to nontrivial regularity results.

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