

"On the injectivity of von Neumann algebras"

Abstract.

Partially answering a question of A.Ya. Helemskii we show that a von Neumann algebra M is injective (Connes-amenable) if and only if all normal dual Banach left M -modules are 1-injective in the sense of M.C. White. In the same vein, a C^* -algebra A is nuclear (amenable) if and only if all its dual Banach left modules are 1-injective. - Neither of these statements seems to be true in the category of completely bounded morphisms between operator modules over M or A .