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Minimal numerical-radius extensions of operators. (English summary)

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The authors characterize minimal numerical-radius extensions of operators from finite-dimensional subspaces of Banach spaces and compare them with the minimal operator-norm extensions. In the case of L^1 , L^∞ and self-adjoint extensions in L^2 , the two extensions and norms turn out to be equal. This is different in the case of L^p , $1 < p < 2$, and more generally when the dual space is strictly convex: if the minimal projections (extensions of the identity) with respect to the operator norm and with respect to the numerical radius have equal norms, then the operator norm is 1. Some three-dimensional example is given where a two-dimensional projection is minimal with respect to the operator norm but not with respect to the numerical radius.

Reviewed by *Hermann König*

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