

On EP-nilpotent decomposition in *-rings

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Abstract. Let \mathcal{R} be a unital ring with involution. We generalize the notion of the EP-nilpotent decomposition from the set of all $n \times n$ complex matrices to the set of all core-EP invertible elements in \mathcal{R} , and study certain relations in \mathcal{R} that are based on the EP-nilpotent decomposition. The notions of the ES and EN partial orders are extended to \mathcal{R} . Properties of these relations are investigated and new characterizations are presented.

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