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A note on homomorphisms of matrix semigroup

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Abstract

Let \mathbf{F} be a field. We classify multiplicative maps from $M_n(\mathbf{F})$ to $M_{C(n,k)}(\mathbf{F})$ which annihilate a zero matrix and map rank- k matrix into a rank-one matrix.

Keywords: Matrix semigroup, homomorphism, representation.

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Opomba o homomorfizmih matričnih polgrup

Povzetek

Naj bo \mathbf{F} polje. Klasificiramo multiplikativne preslikave iz $M_n(\mathbf{F})$ v $M_{C(n, k)}(\mathbf{F})$, ki anihilirajo ničelno matriko in preslikajo matrike ranga k v matrike ranga ena.

Ključne besede: Matrična polgrupa, homomorfizem, reprezentacija.