

Povzetek

V diplomskem delu obravnavamo linearne preslikave, ki ohranjajo komutativnost.

Če je H_n realen vektorski prostor vseh $n \times n$ sebi-adjungiranih kompleksnih matrik in je $n \geq 3$, ϕ linearna preslikava na H_n , ki ohranja komutativnost, je ali $\mathfrak{S}(\phi)$ komutativen ali pa obstajajo unitarna matrika U , realen linearen funkcional f na H_n ter neničelen realen skalar λ , da je bodisi $\phi(A) \equiv \lambda U^ A U + f(A)I$ bodisi $\phi(A) \equiv \lambda U^* A^T U + f(A)I$ za vsak $A \in H_n$.*

Če pa je \mathcal{H} kompleksen Hilbertov prostor, \mathcal{S} realen vektorski prostor vseh sebi-adjungiranih operatorjev na \mathcal{H} , ϕ pa bijektivna linearna preslikava na \mathcal{S} , ki ohranja komutativnost, potem obstajajo unitarni operator U , linearen funkcional f ter realen skalar λ , da je ali $\phi(A) \equiv \lambda U^ A U + f(A)I$ ali pa $\phi(A) \equiv \lambda U^* A^T U + f(A)I$ za vsak $A \in \mathcal{S}$.*

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Ključne besede: linearni ohranjevalci komutativnosti, hermitske matrike, sebi-adjungirani operatorji

Keywords: commutativity-preserving maps, hermitian matrices, self-adjoint operators

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