

On generalized strong complete mappings and mutually orthogonal Latin squares*

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Abstract

We present an application of generalized strong complete mappings to construction of a family of mutually orthogonal Latin squares. We also determine a cycle structure of such mapping which form a complete family of MOLS. Many constructions of generalized strong complete mappings over an extension of finite field are provided.

Keywords: Strong complete mapping, group, finite field, mutually orthogonal Latin squares (MOLS).

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Posplošene izrazito popolne preslikave in vzajemno ortogonalni latinski kvadrati*

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Povzetek

Predstavimo uporabo izrazito popolnih preslikav za konstrukcijo družine vzajemno ortogonalnih latinskih kvadratov. Določimo tudi ciklično strukturo takšne preslikave, ki porodi popolno družino vzajemno ortogonalnih latinskih kvadratov. Opišemo več konstrukcij posplošenih izrazito popolnih preslikav nad razširitvijo končnega obsega.

Ključne besede: Izrazito popolna preslikava, grupa, končni obseg, vzajemno ortogonalni latinski kvadrati.

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