Classification of minimal Frobenius hypermaps[*]

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Abstract

In this paper, we give a classification of orientably regular hypermaps with an automorphism group that is a minimal Frobenius group. A Frobenius group G is called minimal if it has no nontrivial normal subgroup N such that G/N is a Frobenius group. An orientably regular hypermap $\mathcal{H}$ is called a Frobenius hypermap if $\mathrm{Aut}(\mathcal{H})$ acting on the hyperfaces is a Frobenius group. A minimal Frobenius hypermap is a Frobenius hypermap whose automorphism group is a minimal Frobenius group with cyclic point stabilizers. Every Frobenius hypermap covers a minimal Frobenius hypermap. The main theorem of this paper generalizes the main result of Breda D'Azevedo and Fernandes in 2011.

Keywords: Frobenius hypermap, Frobenius group.

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Klasifikacija minimalnih Frobeniusovih hiperzemljevidov[*]

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Povzetek

V tem članku podamo klasifikacijo orientabilno regularnih hiperzemljevidov, za katere velja, da je njihova grupa avtomorfizmov minimalna Frobeniusova grupa. Frobeniusova grupa G se imenuje minimalna, če nima nobene netrivialne edinke N, za katero bi bila G/N Frobeniusova grupa. Orientabilno regularen hiperzemljevid $\mathcal{H}$ se imenuje Frobeniusov hiperzemljevid, če je grupa $\mathrm{Aut}(\mathcal{H})$, delujoča na hiperlicih, Frobeniusova grupa. Minimalen Frobeniusov hiperzemljevid je Frobeniusov hiperzemljevid, katerega grupa avtomorfizmov je minimalna Frobeniusova grupa s cikličnimi stabilizatorji točk. Vsak Frobeniusov hiperzemljevid je krov nad minimalnim Frobeniusovim hiperzemljevidom. Glavni izrek tega članka posplošuje glavni izrek Breda D'Azeveda in Fernandesa iz leta 2011.

Ključne besede: Frobeniusov hiperzemljevid, Frobeniusova grupa.

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