Finitizable set of reductions for polyhedral quadrangulations of closed surfaces

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Abstract

In this paper, we discuss generating theorems of polyhedral quadrangulations of closed surfaces. We prove that the set of the eight reductional operations $\{R_1, \ldots, R_8\}$ defined for polyhedral quadrangulations is finitizable for any closed surface F^2, that is, there exist finitely many minimal polyhedral quadrangulations of F^2 using such operations $R_1, \ldots, R_7$ and R_8. Furthermore, we show that any proper subset of $\{R_1, \ldots, R_8\}$ is not finitizable for polyhedral quadrangulations of the torus.

Keywords: Generating theorem, reduction, finitizable set, polyhedral quadrangulation.

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Dokončna množica redukcij poliedrskih kvadrangulacij sklenjenih ploskev

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Povzetek

V tem prispevku obravnavamo izreke v zvezi z generiranjem poliedrskih kvadrangulacij sklenjenih ploskev. Dokažemo, da je množica osmih redukcijskih operacij $\{R_1, \ldots, R_8\}$, definiranih za poliedrske kvadrangulacije, dokončna za katero koli sklenjeno ploskev F^2, to pomeni, da obstaja končno mnogo minimalnih poliedrskih kvadrangulacij F^2, dobljenih z uporabo teh operacij $R_1, \ldots, R_7$ in R_8. Pokažemo tudi, da nobena prava podmnožica redukcijskih operacij $\{R_1, \ldots, R_8\}$, definiranih za poliedrske kvadrangulacije torusa, ni dokončna.

Ključne besede: Izrek o generiranju, redukcija, dokončna množica, poliedrska kvadrangulacija.

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