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Genus distribution of graph amalgamations: Pasting when one root has arbitrary degree

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Abstract

This paper concerns counting the imbeddings of a graph in a surface. In the first installment of our current work, we showed how to calculate the genus distribution of an iterated amalgamation of copies of a graph whose genus distribution is already known and is further analyzed into a *partitioned genus distribution* (which is defined for a *double-rooted graph*). Our methods were restricted there to the case with two 2-valent roots. In this sequel we substantially extend the method in order to allow one of the two roots to have arbitrarily high valence.

Keywords: Graph, genus distribution, vertex-amalgamation.

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Porazdelitev rodu grafovskih amalgamacij: primer, ko ima eden od korenov poljubno visoko stopnjo

Povzetek

Ta članek obravnava štetje vložitev grafa v ploskev. Gre za nadaljevanje našega prejšnjega dela, v katerem smo že pokazali, kako izračunamo porazdelitev rodov iteriranih amalgamacij kopij grafa, katerega rod porazdelitve poznamo, in jo v nadaljevanju analiziramo s pomočjo *deljene porazdelitve rodov* (definirani za *dvojnokorenski graf*). Tam smo obdelali le primer, ko sta oba korena 2-stopenjska. Tukaj našo metodo bistveno razširimo, tako da je uporabna tudi v primeru, ko ima eden od dveh korenov poljubno visoko stopnjo.

Ključne besede: Graf, porazdelitev rodu, vozliščna amalgamacija.