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Minimum cycle bases of lexicographic products

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Abstract

Minimum cycle bases of product graphs can in most situations be constructed from minimum cycle bases of the factors together with a suitable collection of triangles and/or quadrangles determined by the product operation. Here we give an explicit construction for the lexicographic product $G \circ H$ that generalizes results by Berger and Jaradat to the case that H is not connected.

Keywords: Cycle space, cycle basis, lexicographic product.

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Minimalne baze ciklov leksikografskih produktov

Povzetek

Minimalno bazo ciklov v produktu grafov lahko v večini primerov konstruiramo iz minimalne baze ciklov posameznih faktorjev produkta skupaj z ustrežno zbirko trikotnikov in/ali štirikotnikov, določenih z operacijo produkta. V tem članku podajamo eksplicitno konstrukcijo za leksikografski produkt G o H . Ta konstrukcija predstavlja posplošitev rezultata Bergerja in Jaradata na primer, ko je faktor H nepovezan.

Ključne besede: Prostor ciklov, baza ciklov, leksikografski produkt.