THE ART OF DISCRETE AND APPLIED MATHEMATICS

ISSN 2590-9770
The Art of Discrete and Applied Mathematics 4 (2021) #P3.02
https://doi.org/10.26493/2590-9770.1331.cb0
(Also available at http://adam-journal.eu)

Rotary one-facet maniplexes*

Daniel Pellicer

Centro de Ciencias Matemáticas, Universidad Nacional Autónoma de México, Antigua Carretera a Pátzcuaro 8701, Ex Hacienda de San José de la Huerta 58089, Morelia, Michoacán, Mexico

Steve Wilson

Department of Mathematics and Statistics, Northern Arizona University, Box 5717, Flagstaff, AZ 86011, USA

Received 14 October 2019, accepted 13 April 2020, published online 13 August 2021

Abstract

Maniplexes are combinatorial objects that generalize, simultaneously, maps on surfaces and abstract polytopes. We are interested on studying *rotary* maniplexes, that is, those having maximal 'rotational' symmetry.

This note classifies rotary 4-dimensional maniplexes with the property of having exactly one facet, and gives examples and related results.

Keywords: Graph, automorphism group, symmetry, polytope, maniplex, map, flag, transitivity, rotary, reflexible, chiral.

Math. Subj. Class.: 05E18, 05C25.

*Authors gratefully acknowledge financial support of the PAPIIT-DGAPA, under grant IN 100518.
E-mail addresses: pellicer@matmor.unam.mx (Daniel Pellicer), stephen.wilson@nau.edu (Steve Wilson)

ISSN 2590-9770
The Art of Discrete and Applied Mathematics 4 (2021) #P3.02
https://doi.org/10.26493/2590-9770.1331.cb0
(Dostopno tudi na http://adam-journal.eu)

Rotacijski enostranski manipleksi*

Daniel Pellicer

Centro de Ciencias Matemáticas, Universidad Nacional Autónoma de México, Antigua Carretera a Pátzcuaro 8701, Ex Hacienda de San José de la Huerta 58089, Morelia, Michoacán, Mexico

Steve Wilson

Department of Mathematics and Statistics, Northern Arizona University, Box 5717, Flagstaff, AZ 86011, USA

Prejeto 14. oktobra 2019, sprejeto 13. aprila 2020, objavljeno na spletu 13. avgusta 2021

Povzetek

Manipleksi so kombinatorični objekti, ki posplošujejo tako zemljevide na ploskvah kot tudi abstraktne politope. Zanima nas študij *rotacijskih* manipleksov, to je tistih, ki imajo maksimalno 'rotacijsko' simetrijo.

Klasificiramo rotacijske 4-dimenzionalne maniplekse z lastnostjo, da imajo natančno eno stran, in predstavimo primere ter z njimi povezane rezultate.

Ključne besede: Graf, grupa avtomorfizmov, simetrija, politop, manipleks, zemljevid, prapor, tranzitivnost, rotacijski, refleksiven, kiralen.

Math. Subj. Class.: 05E18, 05C25.

*Avtorja hvaležno priznavata finančno podporo s strani PAPIIT-DGAPA v okviru nepovratnih sredstev IN 100518.

E-poštna naslova: pellicer@matmor.unam.mx (Daniel Pellicer), stephen.wilson@nau.edu (Steve Wilson)