

RECONSTRUCTING SURFACE TRIANGULATIONS BY THEIR INTERSECTION MATRICES¹

JORGE L. AROCHA, JAVIER BRACHO

NATALIA GARCÍA-COLÍN

AND

ISABEL HUBARD

Instituto de Matemáticas
Universidad Nacional Autónoma de México
CU, México D.F. 04510

e-mail: arocha@matem.unam.mx
jbracho@matem.unam.mx
garcia@matem.unam.mx
hubard@matem.unam.mx

Abstract

The intersection matrix of a simplicial complex has entries equal to the rank of the intersection of its facets. We prove that this matrix is enough to define up to isomorphism a triangulation of a surface.

Keywords: triangulated surface, isomorphism, intersection matrix.

2010 Mathematics Subject Classification: 05C10, 57M15.

REFERENCES

- [1] R. Blind and P. Mani-Levitska, *Puzzles and polytope isomorphisms*, *Aequationes Math.* **34** (1987) 287–297.
doi:10.1007/BF01830678
- [2] G. Kalai, *A simple way to tell a simple polytope from its graph*, *J. Combin. Theory Ser. A* **49** (1988) 381–383.
doi:10.1016/0097-3165(88)90064-7

¹Research was partially supported by grants CONACyT 166951 and DGAPA IN112511.

- [3] B. Mohar and A. Vodopivec, *On polyhedral embeddings of cubic graphs*, *Combin. Probab. Comput.* **15** (2006) 877–893.
doi:10.1017/S0963548306007607
- [4] G.M. Ziegler, *Lectures on Polytopes*, *Graduate Texts in Mathematics*, Springer, (1995).
doi:10.1007/978-1-4613-8431-1

Received 8 January 2014
Revised 26 September 2014
Accepted 22 October 2014