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Neighborhoods of edges in normal maps. (Russian) Zbl 0856.05031

Diskretn. Anal. Issled. Oper. 2, No. 3, 3-9 (1995).

A finite map represented on an oriented surface is said to be normal if every vertex has degree at least three and every edge is included in a face with at least three edges. The type of an edge $e = xy$ in such a representation is the 4-tuple consisting of the degrees of x and y and the number of edges in the faces containing e , written in a nondecreasing order. By definition the type $(t_1 t_2 t_3 t_4)$ is bounded above by the type $(t'_1 t'_2 t'_3 t'_4)$ if $t_i \leq t'_i$ for every $1 \leq i \leq 4$. In this paper it is proved that for every normal map on the torus there exists an edge whose type is bounded above by (333∞) , (33410) , (3357) , (3366) , (3446) or (4444) and the property is strong; the property holds also for every normal map on an orientable surface of genus g having more than $576(g - 1)$ edges for 4-tuples: (333∞) , (33411) , (3357) , (3366) , (3446) and (4444) .

Reviewer: [I. Tomescu \(București\)](#)

MSC:

[05C10](#) Planar graphs; geometric and topological aspects of graph theory

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Keywords:

oriented surface; type of an edge; normal map; torus; genus