

J. Oledzki; Stanisław Spieź

On embedding of curves into two-dimensional polyhedra

In: Zdeněk Frolík (ed.): Abstracta. 8th Winter School on Abstract Analysis. Czechoslovak Academy of Sciences, Praha, 1980. pp. 128–129.

Persistent URL: <http://dml.cz/dmlcz/701194>

Terms of use:

© Institute of Mathematics of the Academy of Sciences of the Czech Republic, 1980

Institute of Mathematics of the Czech Academy of Sciences provides access to digitized documents strictly for personal use. Each copy of any part of this document must contain these *Terms of use*.



This document has been digitized, optimized for electronic delivery and stamped with digital signature within the project DML-CZ: The Czech Digital Mathematics Library <http://dml.cz>

On embedding of curves into two-dimensional polyhedra

J. Olędzki and S. Spieź

It is well known that curves (one-dimensional continua) can be embedded in the 3-dimensional Euclidean space. Some curves cannot be embedded into 2-dimensional polyhedra. For instance the Menger universal curve has such property, since each its point has no neighborhood which is flat (can be embedded in a plane). Some curves which are not flat can be embedded into 2-dimensional (even 1-dimensional) polyhedra. A disc is a set homeomorphic to a closed ball in the plane. An n -book is the union of n discs such that the intersection of these discs is a segment lying in their boundary and any two of them have no other common point. R.M. Bing has noticed that a solenoid (the inverse limit of circles) which is not flat can be embedded in a 3-book; a solenoid can be obtained here as the intersection of a decreasing sequence of the Mobius surfaces with added disc, everything lying in a 3-book.

In shape theory it is known that for every curve X there exists a plane curve Y of the same shape as X if and only if X is movable. Our results are connected to the problem (due to J. Krasinkiewicz) what shapes are embeddable in an n -book, $n \geq 3$. It is proved that every one-dimensional compact metric space with zero-dimensional set of non-locally flat points can be embedded into a 3-book. In particular for every curve there exists curve in a 3-book of the same shape. It is noticed that if X is one-dimensional compactum and for every point $x \in X$ there exists a neighborhood U , which can

be embedded in a 2-dimensional polyhedron then X can be embedded in a 2-dimensional polyhedron.