TWO-DIMENSIONAL BRAIDS, THEIR GRAPHICAL
DESCRIPTION AND APPLICATION TO KNOT THEORY

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Two-dimensional braids are embedded or immersed surfaces in a bidisk satisfying a certain condition analogous to braids. The group of braids was well investigated by E. Artin, and his group presentation has a natural geometric meaning. The set of 2-dimensional braids form a commutative monoid, not a group, and the structure is complicated. A graphical method, called chart description, enables us to describe and deform 2-dimensional braids easily. As knots and links in 3-space can be presented by using braids, surface-knots and surface-links in 4-space can be presented by 2-dimensional braids. We also discuss such presentations.

REFERENCES


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