Common unfoldings of polyominoes and polycubes. (English) Zbl 1349.52011

Summary: This paper studies common unfoldings of various classes of polycubes, as well as a new type of unfolding of polyominoes. Previously, Knuth and Miller found a common unfolding of all tree-like tetracubes. By contrast, we show here that all 23 tree-like pentacubes have no such common unfolding, although 22 of them have a common unfolding. On the positive side, we show that there is an unfolding common to all "non-spiraling" $k$-ominoes, a result that extends to planar non-spiraling $k$-cubes.

For the entire collection see [Zbl 1225.68007].

MSC:
- 52B10 Three-dimensional polytopes
- 05B50 Polyominoes
- 52B05 Combinatorial properties of polytopes and polyhedra (number of faces, shortest paths, etc.)

Full Text: DOI Link