

Tilers, Tilemakers, Transformers!

Stefan Langerman*

A *tiling* is a covering of the plane with copies of a geometric shape (*tiles*) without gaps or overlaps. A *tiler* is a shape that tiles the plane.

An *unfolding* is obtained by cutting along the surface of a polyhedron through all its vertices, and opening all the dihedral angles between adjacent faces to obtain a single flat nonoverlapping geometric shape.

A *dissection* is a decomposition of a shape into pieces that, can be rearranged to form another shape.

In this hands-on talk, I will explore connections between these fascinating concepts, in an attempt to shed some light on several still unsolved algorithmic problems, among them:

How easy (or hard) is it to determine if a given geometric shape can tile the plane?

*Département d'Informatique, Université Libre de Bruxelles, stefan.langerman@ulb.ac.be. Directeur de recherches du F.R.S.-FNRS.