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Title: A universal triangulation for flat tori

Abstract: A celebrated theorem of Nash completed by Kuiper implies that every smooth Riemannian surface has a C^1 isometric embedding in the Euclidean 3-space E^3 . An analogous result, due to Burago and Zalgaller, states that every polyhedral surface, obtained by gluing Euclidean triangles, has an isometric PL embedding in E^3 . In particular, this provides PL isometric embeddings for every flat torus (a quotient of E^2 by a rank 2 lattice). However, the proof of Burago and Zalgaller is partially constructive, relying on the Nash-Kuiper theorem. In practice, it produces PL embeddings with a huge number of vertices, moreover distinct for every flat torus. Based on a construction of Zalgaller and on recent works by Arnoux et al. we exhibit a universal triangulation with less than 6.000 triangles, admitting for any flat torus an isometric embedding that is linear on each triangle. This is joint work with Florent Talerie.