Classifying Spacial Triangulations under Symmetry

Tarun Mukthineni*, Dr.Anton Betten, Colorado State University

A spacial triangulation of a cube is a decomposition into tetrahedra whose vertices are chosen from the vertices of the cube. We consider the problem of constructing such triangulations and classifying them. Classifying triangulations means to find their orbit representatives under the symmetry group of the cube. For the classification, we employ a poset-based algorithm. Previously De Loera, Rambau and Santos have identified six representatives of triangulations. We have identified four more representatives.

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