



## ARCHIMEDEAN SOLIDS OF GENUS ONE

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By Steinitz theorem, a graph  $\Gamma$  is polyhedral if and only if it is planar, simple and 3-connected. Archimedean solids can be viewed as polyhedral maps sharing a combinatorial symmetry. The classification of Archimedean solids seems to be “not so far” from the classification of regular maps.

A spherical Archimedean solid is a three-dimensional convex polyhedron – a solid which consists of a collection of polygons (faces) such that a local permutation of faces in a vertex  $v$  (a local type) does not depend on the choice of  $v$ . Thus, the underlying graph of a spherical Archimedean solid is vertex-transitive. Toroidal Archimedean solids are quotients of the uniform (vertex-transitive) tilings of the Euclidean plane described e.g. in Grünbaum’s monograph. Each tiling gives rise to an infinite family of toroidal Archimedean solids.

In recent time the method which gives rise to a classification of (generalized) Archimedean solids of genus greater than one was developed. We would like to discuss the using of this method in genera zero and one to set the classification in the same terms as is was done in higher genera.