EGON SCHULTE, Northeastern University

Highly Symmetric Complexes and Graphs in Ordinary Space

The lecture is about highly symmetric skeletal polyhedra and polygonal complexes in ordinary space, and their edge graphs (nets). These polyhedra and complexes are viewed not as solids but rather as discrete geometric edge graphs in space, equipped with additional polyhedral super-structure imposed by the faces. We discuss the present state of the ongoing program to classify these structures by symmetry, where the degree of symmetry is defined via distinguished transitivity properties of the symmetry groups. A complete classification is known for the regular and chiral polyhedra, and the regular polygonal complexes. There has also been recent progress on uniform polyhedra. Remarkable new structures were discovered using a skeletal variant of Wythoff's construction in space.