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Egon Schulte* (schulte@neu.edu), Department of Mathematics, Northeastern University, Boston, MA 02115. *Regular polygonal complexes in space*. Preliminary report.

The study of highly symmetric discrete structures in 3-space has a long and fascinating history. With the passage of time, various notions of polyhedra have brought to light new exciting classes of regular polyhedra including such well-known objects as the Platonic solids, Kepler-Poinsot polyhedra and Petrie-Coxeter polyhedra.

The talk reviews the enumeration of the complete set of forty-eight regular polyhedra in 3-space (known as the Grünbaum-Dress polyhedra), following a classification scheme obtained years ago in joint work with Peter McMullen. We also describe progress on the full classification of regular polygonal complexes in 3-space, an ongoing joint project with Daniel Pellicer. Polygonal complexes are more general than polyhedra, in that they usually have more than two faces meeting at an edge. (Received August 13, 2008)