

1077-O1-1426 **John F Putz*** (putz@alma.edu), 614 W. Superior St., Alma, MI 48801. *Investigating Polytopes of the Fourth Dimension by Building Models.*

The broad context of this talk is a course whose goal is to come to a better understanding of the fourth dimension. The course has no prerequisites other than basic algebra.

One way to investigate the nature of regular polytopes in four dimensions is to reason by the powerful technique of analogy. The essential activity in this exercise is the construction of physical models. Working together in small groups, students fit congruent poster-board polygons together in all possible configurations around a vertex to create models of regular polyhedra in three dimensions. Then, they take some measurements from their models and pool their data. Next, in a manner similar to the way they put polygons together to form polyhedra, they fit their three-dimensional polyhedra together to predict configurations of four-dimensional polytopes. Finally, students use their collected data to corroborate their predictions. (Received September 19, 2011)