

1145-J5-2155 **Anna Marie Bergman*** (a.bergman@pdx.edu). *What is a rotation? Mapping student's evolving descriptions of 3-dimensional symmetries.* Preliminary report.

In this presentation I will explore the various ways in which a pair of students described 3-dimensional rotational symmetries while investigating symmetry groups in the context of chemistry. During a series of teaching experiments, a pair of mathematics education graduate students were asked to develop an algorithm for classifying chemically important point groups beginning with an investigation of a few ball and stick models of molecules. The student's description of rotational symmetry evolved from highly contextualized and dependent on the location of particular atoms to a much more generalized description equivalent to a conventional definition. The progress the students made through the use of each definition of rotation is framed with the Realistic Mathematics Education design heuristic of emergent models. (Received September 24, 2018)