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Anna Marie Bergman* (a.bergman@pdx.edu) and **Timothy French**. *Using the Emergent Models Heuristic to Describe and Support a Preliminary Local Instructional Theory for the Guided Reinvention of the Classification of Chemically Important Point Groups*. Preliminary report.

Abstract algebra is an essential part of undergraduate mathematical learning and yet this subject is also known for its high level of difficulty at the collegiate level. A comprehensive understanding of molecular symmetry and group theory is also an important part of undergraduate chemistry curriculum. In this presentation, I will describe a preliminary local instructional theory which aims to engage students in learning abstract algebra, specifically group theory, within the context of undergraduate chemistry by supporting students in their guided reinvention of the classification of chemically important point groups. Using the emergent models heuristic from the instructional design theory of realistic mathematics education and data from a recent pilot study with a pair of students, I will illustrate how the students engaged with the context of molecular shapes to move through various levels of mathematical activity; from a very situated activity, considering specific molecules, to a more general level of activity, considering any molecule. (Received February 04, 2018)