1145-J5-739 **Rachel Rupnow*** (rachr15@vt.edu). *Abstract Algebra Students' Use of Metaphors While Problem Solving.*

In an effort to understand ways students visualize isomorphisms and homomorphisms between groups, eight undergraduates from two introductory abstract algebra courses were interviewed. Students in one class had been instructed using the Inquiry-oriented Abstract Algebra materials while students in the other class were taught with lecture two days each week and lab activities on the third day. During these interviews, students were given various groups and asked to ascertain whether an isomorphism existed or a homomorphism existed between the groups. Some groups had the same cardinality and some had different cardinalities. Students' statements while solving were analyzed from a conceptual metaphor lens (Lakoff, G. & Johnson, M. (1980). Metaphors we live by. Chicago: The University of Chicago Press.). Conceptual metaphors are a construct for thinking about one thing as if it were another. Students' metaphors grouped into clusters such as around traveling (e.g. an element from group G sent to group H). The students experienced varied success in creating isomorphisms and homomorphisms and utilized a variety of conceptual metaphors for isomorphism and homomorphism while solving. Patterns in success and struggles while solving are examined in light of the metaphors students used. (Received September 13, 2018)