1056-P5-1366   **Christine Larson*** (`larson.christy@gmail.com`), **Michelle Zandieh** (`zandieh@asu.edu`), **Chris Rasmussen** (`chrisraz@sciences.sdsu.edu`) and **Frances Henderson** (`fdhender@gmail.com`). *Early Eigen Thinking: Students' Interpretations of the Matrix Equation Ax=2x.*

The ideas of eigenvectors and eigenvalues are often introduced in introductory linear algebra courses using matrix equations of the form Ax=2x in low dimensional settings. In this talk, we address the question: How do students think about the matrix equation Ax = 2x? We will discuss students' conceptions of Ax, of 2x, and the ways in which different coordinations of these expressions reflect student conceptions of the equals sign in this context. We believe that students' interpretations of the equals sign in the equation Ax=2x is likely inseparable from their interpretations of Ax and 2x because the way in which one interprets these expressions individually creates constraints and affordances for ways of coordinating relationships between them. Our talk will identify three categories of conceptualizations for matrix multiplication and provide illustrative examples of each. Data was taken from a set of semi-structured clinical interviews conducted with students enrolled in an undergraduate inquiry-oriented introductory linear algebra class. (Received September 21, 2009)