1106-G1-2216 **James D. Factor*** (james.factor@alverno.edu) and **Susan Pustejovsky** (susan.pustejovsky@alverno.edu). *Interleaving Connections of Difficult 2D and 3D Linear Algebra Concepts using Interactive Explorative GeoGebra Applets.* Preliminary report.

In this presentation, an interactive GeoGebra applet will be used to show the interleaved connections between concepts such as change of basis, linear dependence, independence, linear combinations, and at the same time incorporate the meaning of their algebraic, graphic, and numeric representations. By interleaving 2D and 3D concepts, it will be shown that a fluent and natural understanding of the mathematics can be achieved. In this way, ideas and the meanings of symbolic manipulation that are often difficult to explain and understand can become clear.

As part of the project **Transforming Linear Algebra Education with GeoGebra Applets (NSF TUES Grant DUE-1141045)**, 12 packages, including 2D/3D interactive applets, with instructional modules, activities, and applications will be produced for a first course. Our curriculum goal is to support student mathematical growth in becoming harmonic thinkers, i.e. mathematical problem solvers that can easily move between and among various geometric, analytic, and numeric representations in the process of understanding and solving linear algebra problems.

More detailed information is given at the MAA/NSF Poster Session. Future plans include mini-courses on classroom use and a website containing all packages. (Received September 16, 2014)