1106-VC-2555 **Horia I Petrache*** (hpetrach@iupui.edu), Department of Physics, Indiana Univ. Purdue Univ. Indianapolis, Indianapolis, IN 46202. *Generalized complex numbers and motion in central force fields.* Preliminary report.

Classical physics, mechanics in particular, is done using vector spaces and complex numbers. Recently, multidimensional number systems such as the quaternions are receiving renewed attention due to a more natural way of describing rotations and other symmetry transformations of physical systems. Among multidimensional numbers systems, quaternions (4D), and the 8-dimensional octonions are most widely known in addition to conventional complex numbers in 2D. However, a larger class of multidimensional numbers exists and can be systematically parameterized. I will discuss such parameterizations for small number of dimensions and show examples of using generalized complex numbers to describe trajectories in central force fields. (Received September 16, 2014)