1070-70-235 **Cristina Stoica*** (cstoica@wlu.ca). *On relative equilibria of N-point-mass rotationally invariant systems.*

About 20 years ago, J.E. Marsden and co-workers established a methodology for deciding the stability of a relative equilibrium of a Hamiltonian system. Since then, this method, known as the reduced energy-momentum (REM), was applied to various problems such as the double spherical pendulum, pseudo-rigid bodies (liquid drops) and vortex systems.

This talk presents an application of REM to planar rotationally invariant relative equilibria of three-point-mass systems. Two examples are discussed in detail: equilateral relative equilibria for the classical three-body problem, and isosceles triatomic molecules. We also mention further applications to more general N-point-mass systems, as well as simplifications induced by additional discrete symmetries of the relative equilibrium configuration. (Received February 13, 2011)