1056-65-30 **Leon Kaganovskiy*** (lkaganovskiy@ncf.edu), 3525 Cheshire Sq, apt B, Sarasota, FL 34237, and **Robert Krasny** (lkaganovskiy@ncf.edu) and **Feng Hualong** (lkaganovskiy@ncf.edu).
Numerical techniques for 3-D Vortex Rings Motion and Collision.

We consider a panel method for computing vortex sheet motion in 3D flow. The sheet is represented as a set of quad-tree panel structure. The panels have active particles that carry circulation and passive particles used for adaptive panel subdivision. The new feature of this scheme is that the explicit derivatives of the flow map are not required. The Biot-Savart kernel is regularized and the velocity is evaluated by a multipole treecode. The method is applied to azimuthally unstable single vortex ring as well as vortex rings collision. Vorticity isosurfaces are investigated and compared to experimental results. (Received June 22, 2009)