

1086-VL-1139 **Leon Kaganovskiy*** (leonkag@gmail.com), 1233 E 19th St Apt 6J, Brooklyn, NY 112305474,
and **Robert Krasny** (krasny@umich.edu), 525 Church Street, Ann Arbor, MI 34237. *Numerical
Simulation of Vortex Ring Instability and Collisions.*

Vortex sheet model and Lagrangian particle/panel method is employed to represent vortex sheet surface in 3D incompressible. The particles representing the sheet are advected by a regularized Biot-Savart integral with smoothed Rosenhead-Moore kernel. The particle velocities are evaluated by an adaptive hierarchical treecode algorithm based on Taylor expansions in Cartesian coordinates. Intricate details of instabilities and late stages of rings collisions could be illuminated with this method. Vortex sheet approach allows us to see the details of ring's roll-up, vorticity iso-surfaces, and axial flow observed in experiments. (Received September 19, 2012)