

Meeting: 1005, Newark, Delaware, SS 11A, Special Session on Recent Progress in Thin Fluid Flows

1005-76-54 **Witelski P Thomas*** (witelski@math.duke.edu), Dept of Mathematics, Duke University, Box 90320, Physics Building, Durham, NC 27708-0320. *The coarsening dynamics of dewetting fluid films.*

The study of instabilities of thin fluid films on solid surfaces is of great importance in understanding coating flows. These instabilities lead to rupture, the formation of dry spots, and further morphological changes that promote non-uniformity of coatings; these behaviors in unstable thin films are generally called "dewetting". Following rupture and subsequent transient behavior, the long-time structure of films takes the form of an array of droplets. The evolution of this system can be represented in terms of coupled ODEs for the masses and positions of the droplets. Regimes where droplet coarsening by each of two mechanisms (collision and collapse) are identified, and power laws for the statistics of the coarsening processes are explained. This is joint work with Karl Glasner, University of Arizona. (Received January 22, 2005)