1067-35-606 **Andrea Bertozzi** (bertozzi@math.ucla.edu), **John Garnett** (jbg@math.ucla.edu) and **Thomas Laurent*** (laurent@math.ucr.edu). *Characterization of radially symmetric finite time blowup in multidimensional aggregation equations.*

The aggregation equation

$$\frac{\partial \rho}{\partial t} + \text{div } (\rho \vec{v}) = 0, \tag{1}$$

$$\vec{v} = -\nabla K * \rho \tag{2}$$

is a continuum models for interacting particle systems with attractive/repulsive pairwise interaction potential K. It arises in a number of models for biological aggregation as well as problems in materials science and granular media. The main phenomenon of interest is that, even with smooth initial data, the solutions can concentrate mass in finite time (i.e. a delta Dirac appears in the solution in finite time). We prove rigorous result explaining how and under which circumstances these finite time blowups happen in the case of radially symmetric solutions. (Received September 13, 2010)