1110-35-130 **Changhui Tan*** (ctan@cscamm.umd.edu), 4123 CSIC Building, University of Maryland, College Park, MD 20742. *Eulerian dynamics with nonlocal interactions.*

In this talk, I will discuss compressible Euler equations with interaction forces, including attraction, repulsion and alignment. The system arises as the hydrodynamic limit of the mean-field description for models on collective behaviors, such as flocks of birds, school of fishes, colonies of bacteria, etc. We outline the derivation of the system, and study its global well-posedness and large time behavior. In the case of alignment force, we obtain a sharp threshold on initial data, where subcritical initials converges to a flocking solution, and supercritical initials blows up in finite time. This is a joint work with J.A. Carrillo, Y.-P. Choi and E. Tadmor. (Received February 17, 2015)