1141-35-38 **Ihsan Topaloglu*** (iatopaloglu@vcu.edu). *Slow Diffusion Limit of Aggregation-Diffusion Energies and Their Gradient Flows.*

For a range of physical and biological processes—from dynamics of granular media to biological swarming—the evolution of a large number of interacting agents is modeled according to the competing effects of pairwise interaction and (possibly degenerate) diffusion. In particular, models with hard height constraints (such as pedestrian crowd motion) attract significant interest. We prove that minimizers and gradient flows of constrained interaction energies arise as the slow diffusion limit of well-known aggregation-diffusion energies. We then apply this to develop numerical insight for open conjectures in a class of geometric variational problems. This is a joint project with Katy Craig. (Received July 05, 2018)