

1134-35-305

Joshua Ballew and **Konstantina Trivisa*** (trivisa@math.umd.edu), Department of Mathematics, University of Maryland, Kirwan Hall, College Park, MD 20742. *On the Euler-Smoluchowski system for fluid-particle interaction.*

Recent advances on the Euler system for fluid-particle interaction are presented. The system under consideration is governed by the continuity equation, the balance of momentum enhanced by the addition of forces that the fluid and the particle exert mutually and the Smoluchowski equation for the evolution of particles. Well-posedness of weak solutions to the Euler-Smoluchowski system for the interaction of particles and an inviscid, compressible fluid is considered. Using the method of convex integration of De Lellis and Székelyhidi, the existence of in finitely many global-in-time weak solutions for any choice of regular initial data is shown. This result is then investigated in the case of weakly-dissipative admissible solutions obeying an energy inequality and a relative entropy inequality. (Received September 10, 2017)