

1134-35-342

**Tam Do\*** ([tamdo@usc.edu](mailto:tamdo@usc.edu)). *Global Regularity for the Fractional Euler Alignment System.*

We study a pressureless Euler alignment system with nonlinear density-dependent alignment term. The system originates from Cucker-Smale flocking models. The alignment term is dissipative and has the same order as the fractional Laplacian  $(-\Delta)^\alpha$ ,  $\alpha \in (0, 1)$ . The corresponding system with the fractional Laplacian is the fractional Burgers equation, which forms shocks in finite time. We show solutions are globally regular for all  $\alpha \in (0, 1)$ . (Received September 11, 2017)