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 March 17, 2017)