1128-35-86 **Tam Do**, **Alexander Kiselev**, **Lenya Ryzhik** and **Changhui Tan*** (ctan@rice.edu). *Global regularity for the fractional Euler alignment system.*

Euler alignment system arises from collective dynamics in mathematical biology. With a singular influence function, the system is closely related to fractional Burgers equation. It is well-known that in the supercritical case, solutions for fractional Burgers equation can lead to finite time blowup, as dissipation is too weak to compete with the nonlinear convection. In this talk, I will present a surprising result: the solution for fractional Euler alignment system is globally regular. I will discuss the mechanism that nonlinearity dynamically enhances dissipation which leads to global regularity. (Received February 14, 2017)