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Tam Do, Alexander Kiselev, Lenya Ryzhik and **Changhui Tan***, 6100 Main St., Houston, TX 77005. *Global regularity for Burgers equation with density dependent fractional dissipation.*

Fractional Burgers equations are a family of equations which connect inviscid and viscous Burgers equations. It is well-known that if the dissipation is strong, the solution is globally regular. On the other hand, if the dissipation is weak (called supercritical case), the solution can lose regularity in finite time. In this talk, I will introduce a model where the dissipation depends on density. The model is motivated by self-organized dynamics in math biology. Despite that the equation shares a lot of similarities to fractional Burgers equation, the solution is globally regular, even in the supercritical case. I will explain the regularization mechanism that is due to the nonlocal nonlinear modulation of dissipation. This is a joint work with T. Do, A. Kiselev, and L. Ryzhik. (Received September 07, 2017)