1152-35-88   **Javier Gómez-Serrano**, **Jaemin Park**, **Jia Shi** and **Yao Yao*** (`yaoyao@math.gatech.edu`).
Radial symmetry of stationary and uniformly-rotating solutions of 2D incompressible fluid equations.

In this talk, I will discuss some recent work on radial symmetry property of stationary and uniformly-rotating solutions for the 2D Euler and gSQG equation, where we aim to answer the question whether every stationary/uniformly-rotating solution must be radially symmetric, if the vorticity is compactly supported. For the 2D Euler equation, we show that any smooth stationary solution with compactly supported and nonnegative vorticity must be radial. In the patch setting, for the 2D Euler equation we show that every uniformly-rotating patch with angular velocity $\Omega \leq 0$ or $\Omega \geq \frac{1}{2}$ must be radial, where both bounds are sharp. For the gSQG equation we obtain a similar symmetry result for $\Omega \leq 0$ or $\Omega \geq \Omega_\alpha$ (with the bounds being sharp), under the additional assumption that the patch is simply-connected. This is a joint work with Javier Gómez-Serrano, Jaemin Park and Jia Shi. (Received August 26, 2019)