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Jiahong Wu* (jiahong.wu@okstate.edu), Department of Mathematics, Oklahoma State University, 401 Mathematical Sciences, Stillwater, OK 74078. *Stability and regularity results for the 2D Boussinesq equations with partial dissipation.*

This talk presents recent work on the stability problem concerning several equilibrium solutions to the 2D Boussinesq equations with partial dissipation. First, we describe the linear and nonlinear stability results on the hydrostatic equilibrium of the 2D Boussinesq equations with only velocity dissipation. This is a joint work with C. Doering, K. Zhao and X. Zheng. Second, we explain the work with L. Tao on the linear stability of the Couette flow for the 2D Boussinesq equations with only vertical dissipation. In addition, we will briefly report work in progress on the large-time behavior of perturbations of the hydrostatic equilibrium and on the nonlinear stability of the Couette flow. (Received September 17, 2017)