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**Jiahong Wu\*** ([jiahong@math.okstate.edu](mailto:jiahong@math.okstate.edu)), Department of Mathematics, Oklahoma State University, 401 Mathematical Sciences, Stillwater, OK 74078. *The generalized incompressible Navier-Stokes equations.*

The generalized Navier-Stokes equations are the equations resulting from replacing the Laplacian  $(-\Delta)$  in the Navier-Stokes equations by the fractional Laplacian  $(-\Delta)^\alpha$ . One goal of studying the generalized Navier-Stokes equations is to understand precisely how dissipation affects the regularity of solutions and to potentially determine the critical dissipation that guarantees the global existence of classical solutions. In this lecture we will talk about recent results on the existence and uniqueness of solutions to the generalized Navier-Stokes equations in Besov spaces. (Received February 01, 2006)