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Some new Prodi-Serrin type conditions for the 3D Navier-Stokes equations

In this talk I will present several new families of Prodi-Serrin type conditions which guarantee the smoothness of weak solutions for the 3D Navier-Stokes equations. These conditions involve either one of the quantities pressure, velocity, gradient of velocity, or their mixtures, and are in the form of space-time bounds on the Lebesgue, Lorentz, or Orlicz norms. This is joint work with Prof. Chuong V. Tran and Mr. Benjamin Pineau.