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**Phuc Cong Nguyen\*** (pcnguyen@math.lsu.edu), Department of Mathematics, Louisiana State University, 303 Lockett Hall, Baton Rouge, LA 70803, and **Cristi Guevara**.  *$\epsilon$ -regularity and self-similar singularities of the 3D Navier-Stokes system.*

In this talk, the 3D Navier-Stokes system is considered. By viewing the head pressure as weights generally belonging to a Sobolev space of negative order, we obtain some new  $\epsilon$ -regularity criteria and rule out the existence of Leray's backward self-similar solutions to the Navier-Stokes system with low integrability profiles. This talk is based on joint work with Cristi Guevara. (Received August 16, 2018)