1146-35-160 **Irena Lasiecka*** (lasiecka@memphis.edu), 160 Ascot Park Common Drive, Memphis, TN 38120, and **Buddhika Priyasad** and **Roberto Triggiani**. *Finite dimensional boundary stabilization of a 3-D unstable Navier Stokes flow.*

We consider dynamics of a 3 D Navier Stokes equation around an unstable equilibrium. The aim is to stabilize the flow by means of a finite dimensional boundary feedback. While solution of such problem became recently available in the case of 2 dimensions, the three dimensional case has been wide open unless initial data are compactly supported. The difficulty has been due to the necessity of imposing compatibility conditions on the boundary for flows with sufficiently high level of differentiability [the latter necessitated by the 3 D nature of the nonlinear vortex term]. It will be shown how to resolve this open problem by developing (i) maximal regularity theory of the underlined dynamics in Besov's spaces with low differentiability and high integrability, (ii) finite dimensional construction of a suitable boundary feedback stabilizers cooperating with the imposed functional analytic structure.. This is joint work with B. Priyasad and R. Triggiani. (Received January 18, 2019)