Mathematics, Statistics, and Computer Science **@ UIC**

Analysis and Applied Mathematics Seminar

New Energy Balance Criteria for the Navier-Stokes Equations

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Abstract: When a Leray-Hopf weak solution to the Navier-Stokes equations has a singularity set S of dimension d less than 3–for example, a suitable weak solution–we find a family of L^qL^p conditions that guarantee validity of the energy balance relation. Our conditions surpass the classical Lions-Ladyzhenskaya L^4L^4 result in the case $d < 1$. In this talk, we focus on the special case when S belongs to a single time-slice. Besides allowing more flexibility in the relevant analysis (and accordingly, stronger results), the time-slice case is the one which is most relevant for the blowup problem. If time allows, we will also discuss extensions to the fractional Navier-Stokes equations.

Monday, April 3 at 4:00 PM in SEO 636