

Analysis and Applied Mathematics Seminar

An algebraic reduction of the "scaling gap" in the Navier-Stokes regularity problem

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Abstract: It is shown—within a mathematical framework based on the suitably defined scale of sparseness of the super-level sets of the positive and negative parts of the vorticity components, and in the context of a blow-up-type argument—that the ever-resisting "scaling gap" in the 3D Navier-Stokes regularity problem can be reduced by an algebraic factor; all preexisting improvements have been logarithmic in nature, regardless of the functional set up utilized. The mathematics presented was inspired by morphology of the regions of intense vorticity/velocity gradients observed in computational simulations of turbulent flows. A joint work with Z. Bradshaw and A. Farhat.

Monday, April 24 at 4:00 PM in SEO 636