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Tuan Ngoc Pham* (tuan.pham@mathematics.byu.edu). *Blowup solutions of a Navier-Stokes-like equation - A probabilistic perspective.*

Although it is not known if an L^3 -initial datum can produce a blowup solution of the 3-dimensional Navier-Stokes equations, various results have been established based on the assumption that there is such a blowup-generating datum. One of the results is the existence of a blowup-generating datum with minimal norm (Jia-Sverak 2013, Gallagher et al 2013, etc). From a control theory perspective, the existence of minimal blowup data implies that there is a minimal cost one has to pay to generate blowup. The existence of minimal blowup data has been studied in several differential equations such as the harmonic map heatflow, the complex Ginzburg-Landau equation and the Schrodinger equation. In 1997, Le Jan and Sznitman constructed solutions of the Navier-Stokes equations via branching processes, similar to McKean's approach to the KPP-Fisher equation in 1975. We employ their idea to study the minimal blowup data of a Navier-Stokes-like equation called cheap NSE by Montgomery-Smith, 2002. Joint work with Radu Dascaliuc and Chris Orum. (Received September 01, 2020)