

962-60-1311

Gopinath Kallianpur* (gk@stat.unc.edu), Department of Statistics, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-3260, and **Anna Amirdjanova**, Department of Statistics, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-3260. *Some Problems in Stochastic Fluid Dynamics*. Preliminary report.

A stochastic vorticity process is defined using a system of vortices satisfying an Ito-Skorokhod stochastic differential equation. A signed measure-valued equation is derived. The existence of a unique solution is proved. Partial observation of the vorticity leads to an application of stochastic filtering theory to the problem. (Received October 03, 2000)