1085-76-66 **Bjorn Birnir*** (birnir@math.ucsb.edu), Dept. of Math, Univ. of California, Santa Barbara, Santa Barbara, CA 93117. *The Statistical Theory of Turbulent Vorticity.*

In this talk we show how to construct the invariant measure of the turbulent vorticity field from the stochastic Navier-Stokes equations for the vorticity. Projecting the measure onto the probability density function (PDF) for the vorticity allows us to compute all the moments of the turbulent vorticity. The invariant measure is a product of an infinite Gaussian measure with a Poisson measure generating the intermittency in turbulence. This implies that each moment comes with its own PDF. We show that all of these PDFs are normal inverse (NIG) distributions of Barndorff-Nilsen and compare the theoretical PDFs with PDFs from simulations. (Received August 29, 2012)