

Meeting: 1001, Evanston, Illinois, SS 11A, Special Session on Stability Issues in Fluid Dynamics

1001-37-395 **Robert Ghrist*** (ghrist@math.uiuc.edu) and **John Etnyre**. *Generic hydrodynamic instability via contact homology.*

It is a folklore theorem that almost all steady incompressible inviscid flows in 3-d are unstable. We give a precise version of generic instability by using three ingredients: (1) the instability criterion used by Friedlander-Vishik; (2) results on genericity of curl eigenfields with respect to the geometry of the domain; and (3) a recent homology theory based on contact structures, as developed by Eliashberg, Givental, and Hofer. (Received August 31, 2004)