

Sub-riemannian Navier-Stokes equation/ Well-posedness, smoothing effects and anisotropy

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Abstract

In this talk I introduce an anisotropic Navier-Stokes system, called sub-riemannian Navier-Stokes system, for which the velocity field doesn't take all directions. We investigate the case of the Heisenberg group. This is motivated by the fact that the underlying geometry is well-understood. The key ideas of the analysis is the propagation of the regularity following some well-chosen vectors fields, which are given by the Lie group structure. In contrast to the classical Navier-Stokes equation less information on the initial data (only on certain directions) are needed to obtain the global existence.