On Stochastic 2D Navier Stokes equations
and hydrodynamical models
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The aim of this talk is to give a survey of some classical 2D Hyrdodyna-mical models, such as the celebrated Navier Stokes equations describing the velocity of a fluid, or some more involved models where the Navier Stokes equations are coupled with similar non linear PDEs describing the evolution of several physical parameters of the fluid (such as the temperature, the magnetic field, ...). These equations will be subject to some stochastic perturbation driven by an infinite dimensional Gaussian noise.

In case of a strictly positive viscosity, related with the "turbulence" of the fluid, we will prove well posedness for these stochastic evolution equations and provide apriori bounds for the solution in appropriate function spaces. We will then state similar well-posedeness for some 3D models with positive viscosity or some 2D models in the case of non-viscous fluids. If time allows, we will mention recent results on the stochastic analysis of the solution, existence and uniqueness of and invariant measure, ...