

# On a fluid-particle interaction model.

## **Abstract**

Abstract: We consider the  $\alpha$ -Navier-Stokes equations coupled with a Vlasov type equation as a model for the flow of an incompressible fluid containing thin particles. We prove the global-in-time existence of weak solutions to the coupled system subject to periodic boundary conditions. Moreover, we investigate the convergence of its solutions to that of the Navier-Stokes-Vlasov equations when the parameter  $\alpha$  tends to zero.