

# The Vlasov-Navier-Stokes system with absorption: viscous penalization ?

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## Abstract

The Vlasov-Navier-Stokes system is a fluid/kinetic coupling describing the evolution of an aerosol within a fluid. In the context of aerosol therapy, absorption is the most relevant boundary condition for the dispersed phase, because of the presence of mucus on the pulmonary ducts. Bearing this application setting in mind, we will investigate the possibility of recovering this boundary condition from the study of the same system in the whole space, in a (localized) high viscosity limit, using the Boyer-Mischler renormalized trace theory for the transport equations.