

SEMINÁRIO DE MECÂNICA

Rotational Dynamics and Magnetization in Dilute non-Brownian Magnetic Suspensions

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Abstract.

In this talk, we investigate the magnetization of diluted non-Brownian magnetic suspensions in the presence of an external simple shear flow for a regime of high Péclet numbers (*i.e.* in the absence of Brownian effects). In the context of non-Brownian suspensions, the first-order magnetization is deterministic. By analyzing the rotational dynamics of an isolated particle, we can determine an analytical expression for the steady-state first-order magnetization for large values of the magnetic field parameter β . Furthermore, values for the second-order magnetization have been computed numerically by using dynamical simulations of two particles interacting hydrodynamically and magnetically in the presence of a simple shear flow.