

Zero entropic relaxation time for a ferromagnetic fluid system

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In the physical sciences, relaxation usually means the return of a perturbed system to equilibrium. Each relaxation process can be categorized by a relaxation time τ , for a generic commercial grade ferrofluid (a mixture of nanoscale ferromagnetic particles of a compound containing iron suspended in a fluid) the relaxation time is very small, of the order $\tau \approx 10^{-9}$; it makes hence sense to provide an asymptotic approximation when $\tau \rightarrow 0$. In this talk I will explain how to construct solutions for the Shliomis model of ferrofluids in a critical space of infinite L^2 energy uniformly for $\tau \in (0, \tau_0)$, such uniform construction will allow us to study the limit regime $\tau \rightarrow 0$ and the convergence of the critical solutions.

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