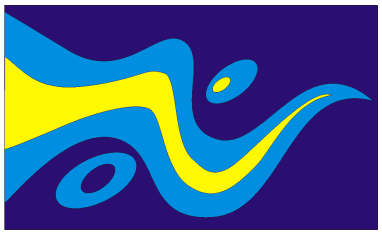
PhD Course in

Earth Science, Fluid Mechanics and Mathematics
Interactions and Methods



Seminar Series 2019

April 4, 2019, 14.30-15.30
Department of Mathematics and Geoscience
Building H2bis, III floor
Seminar Room

"Zero entropic relaxation time for a ferromagnetic fluid system"

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Abstract
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 $\tau \to 0$. 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 $\tau \in (0, \tau_o)$, such uniform construction will allow us to study the limit regime $\tau \to 0$ and the convergence of the critical solutions.