Stefano Scrobogna (Université de Bordeaux) : *Dispersive effects of weakly compressible and highly rotating inviscid fluids.*

Abstract : This exposition is focused on the dynamics of inviscid, fast rotating and slightly barotropic hydrodynamical flows. In the regime in which Rossby number and Mach numbers tend to zero at the same rate there are present two-types of dispersive effect, due respectively to high-speed propagation of acoustic waves and centrifugal effects, these effects can be studied combined via Strichartz estimates. We prove that these perturbations, although they propagate at a speed $O\left(\varepsilon^{-1}\right)$, converge strongly to zero in some appropriate $L^p\left(\mathbb{R}_{+,t};L^q\left(\mathbb{R}^3_x\right)\right)$ space. This allows us to prove that the limit hydrodynamic flow is globally well posed in $L^\infty\left(\mathbb{R}_{+,t};H^s\left(\mathbb{R}^3_x\right)\right)$ for $s>5/2$ although it is a 3D flow with no particular smallness assumption on the initial data in any norm.