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# Seminar

## The incompressible limit in $L^p$ type critical spaces

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Abstract: This talk aims at justifying the low Mach number convergence to the incompressible Navier-Stokes equations for viscous compressible flows in the *ill-prepared data* case. The fluid domain is either the whole space, or the torus. A number of works have been dedicated to this classical issue, all of them being, to our knowledge, related to  $L^2$  spaces and to energy type arguments. In the present work, we investigate the low Mach number convergence in the  $L^p$  type critical regularity framework. More precisely, in the barotropic case, the divergence-free part of the initial velocity field just has to be bounded in the critical Besov space  $\dot{B}_{p,r}^{d/p-1} \cap \dot{B}_{\infty,1}^{-1}$  for some suitable  $(p,r) \in [2, 4] \times [1, +\infty]$ . We still require  $L^2$  type bounds on the low frequencies of the potential part of the velocity and on the density, though, an assumption which seems to be unavoidable in the ill-prepared data framework, because of acoustic waves.

Date: 20 January 2016 (Wednesday)  
Time: 11:00 a.m. – 12:00 noon  
Venue: Room 222, Lady Shaw Building  
The Chinese University of Hong Kong, Shatin

*All are Welcome!*