

1049-76-182

Gung-Min Gie (gugie@umail.iu.edu), ISCAM, Indiana University, Room SE 315, Rawles Hall, 831 E. Third St., Bloomington, IN 47405, **Makram Hamouda*** (mahamoud@indiana.edu), ISCAM, Indiana University, Room SE 315, Rawles Hall, 831 E. Third St., Bloomington, IN IN 47405, and **Roger Temam** (temam@indiana.edu), ISCAM, Indiana University, Room SE 315, Rawles Hall, 831 E. Third St., Bloomington, IN IN 47405. *Remarks on the boundary layers for the Navier-Stokes equations in bounded domains.*

We present in this lecture some convergence results related to the Linearized Navier-Stokes equations as the viscosity goes to zero. In this case and when the Dirichlet boundary conditions are considered, it is well known that some boundary layers occur at the boundary for bounded domains (at least in one direction). However, depending on the prescribed boundary conditions we distinguish two cases: the non-characteristic and the characteristic boundaries. Here, we mainly deal with the characteristic case when the boundary is flat (flow in a channel) and we end by giving some (necessary) results on the case of general bounded domains with curved boundary. These results should be useful, in particular, for the study of the asymptotic analysis of the linear and nonlinear Navier-Stokes problems when the viscosity goes to zero. (Received March 03, 2009)