1022-35-145 **Mohammed B Ziane*** (ziane@usc.edu), Mathematics Department, University of Southern Caliofrnia, 3620 Vermont Avenue, KAP 108, Los Angeles, CA 90089, and **Igor Kukavica**.

*Remarks on the conditionnal regularity of the 3D Navier-Stokes equation.*

We give sufficient conditions for the regularity of Leray-Hopf weak solutions of the Navier-Stokes equation. We prove that if one of three conditions (i) $\partial u/\partial x_3 \in L_t^{s_0} L_x^{r_0}$ where $\frac{2}{s_0}+\frac{3}{r_0} \le 2$ and $9/4 \le r_0 \le 3$, (ii) $\nabla u_3 \in L_t^{s_1} L_x^{r_1}$ where $\frac{2}{s_1}+\frac{3}{r_1} \le \frac{11}{6}$ and $54/23 \le r_0 \le 18/5$, or (iii) $u_3 \in L_t^{s_0} L_x^{r_0}$ where $\frac{2}{s_0}+\frac{3}{r_0} \le \frac{5}{8}$ and $24/5 \le r_0 \le \infty$, then the solution is regular. These conditions improve earlier results on the conditionnal regularity, of the Navier-Stokes equations. This is a joint work with I. Kukavica. (Received September 12, 2006)