1014-35-1131 **Gabriel S. Koch*** (koch@math.umn.edu), 127 Vincent Hall, 206 Church St. S.E., Minneapolis, MN 55455. *Liouville Theorem for 2-D Navier-Stokes Equations.* Preliminary report.

(Joint work with V. Sverak and N. Nadirashvili.)

We prove a Liouville theorem for the Navier-Stokes equations in two space dimensions, that bounded solutions $\mathbf{u}(x,t) = (u_1(x,t), u_2(x,t))$, $x \in \mathbb{R}^2$, $t \in \mathbb{R}$, of the equations

$$\mathbf{u}_t - \triangle\mathbf{u} + (\mathbf{u}\cdot\nabla)\mathbf{u} + \nabla p = 0$$

$$\text{div }\mathbf{u} = 0$$

are of the form $\mathbf{u}(x,t) = \mathbf{u}_0(t)$. In particular, in the steady-state case, bounded solutions are constant. (Note that we do not need any assumptions regarding the pressure, $p(x,t)$.) (Received September 27, 2005)