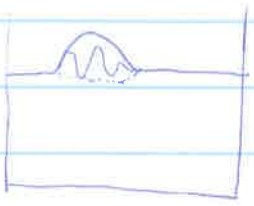
10/27 Thomas Alazard.

$\mathrm{Curl}\ v = 0 \Rightarrow v = \nabla\phi$

$\mathrm{div}\ v = 0 \Rightarrow \Delta\phi = 0$

$\phi|_{y=\eta}$ $\psi(t,x) = \phi(t,x,\eta(t,x))$.



$\chi(x)\cos(Nx)$ $\frac{1}{2\sqrt{N}}$.

V B $G(\eta)\psi$

$V = (\partial_x\phi)|_{y=\eta}$ $B = (\partial_y\phi)|_{y=\eta}$

$G(\eta)\psi = \sqrt{1+\eta_x^2}\,\partial_n\phi|_{y=\eta}$

$\Delta\phi = 0$ $\phi|_{y=\eta} = \psi$

$H \geq \frac{g}{2}\int \eta^2(t,x)\,dx + \|\,|D|^{1/2}\psi\,\|_{L^2}^2$

$|\partial_x\eta| \leq \frac{1}{7}$