1106-VL-1561 **Vladimir Georgiev** and **Daniele Garrisi*** (daniele.garrisi@inha.ac.kr). *Finiteness of positive and radially symmetric standing-wave solutions to a nonlinear Schrödinger equation.* Preliminary report.

The orbital stability of standing-wave solutions to the non-linear Schrödinger equation

$$i\partial_t\varphi + \Delta\varphi + |\varphi|^{p-1}\varphi = 0.$$

has been proved by T. Cazenhave and P. L. Lions in 1983. The proof uses the Concentration-Compactness Theorem of P. L. Lions and relies on the fact that there is only one positive and radially symmetric solution to

$$\Delta u + u^p = \omega u, \quad u \in H^1_r(\mathbb{R}^n), \quad u > 0.$$

for fixed $\omega$. We wish to investigate to what extent such property is preserved when the pure power non-linearity is replaced by a general non-linearity $f$. We show that, at least when $\lambda$ is suitably small, there are only finitely many of such solutions. (Received September 14, 2014)