1096-35-1512 **Daniele Garrisi*** (daniele.garrisi@gmail.com), West Building, Office No. 443, Department of Mathematics Education, Inha University, Incheon, 402751, South Korea, and **Vladimir Georgiev**, Dipartimento di Matematica "Leonida Tonelli", Largo Bruno Pontecorvo n. 5, 56127 Pisa, Pisa, Italy. *Traveling-wave solutions to the half-wave equation.* Preliminary report.

We discuss the existence of traveling-wave solutions

$$\psi(t,x) = e^{-i\omega t}\phi(x - tv) \tag{1}$$

to evolution equation

$$i\partial_t\psi - \sqrt{-\Delta}\,\psi + |\psi|^{p-1}\psi - |\psi|^{q-1}\psi = 0, \quad 1 < p < q \tag{2}$$

in spatial dimension $N = 1$ and for velocities v such that $|v| < 1$. The existence of such solutions can be obtained by showing that minimising sequences of the energy functional

$$\mathcal{E}\colon H^{1/2}(\mathbb{R}) \to \mathbb{R}$$

$$\mathcal{E}(\phi) = H_v(\phi) - \frac{1}{p+1}\|\phi\|_{p+1}^{p+1} + \frac{1}{q+1}\|\phi\|_{q+1}^{q+1}$$

$$H_v(\phi) = \frac{1}{2}\|\phi\|_{\dot{H}^{1/2}(\mathbb{R})}^2 + \frac{i}{2}\int_{-\infty}^{+\infty} \nabla\phi(x)\cdot v\overline{\phi}(x)dx$$

over the constraint

$$S(\lambda) = \{\phi \in H^{1/2}(\mathbb{R}) \mid \|\phi\|_{L^2}^2 = \lambda\}$$

exhibit a concentration-compactness behaviour. The concentration-compactness, along with other features of positive solutions to (**??**), is an essential premise to the proof of the orbital stability of the solutions in (**??**). (Received September 16, 2013)