

Smooth branches of travelling waves for the 2D Nonlinear Schrödinger equation

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We shall present some results on the existence of smooth branches of travelling waves for the 2D nonlinear Schrödinger equation parametrized by the speed. In the limit of small speed (joint works with E. Pacherie), the travelling wave has two well separated vortices and we prove that these are the only minimizers of the energy for fixed momentum. In the limit where the speed is close to the speed of sound, we obtain rarefaction pulses described by rational lump solutions to the KP-I equation.

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