

Stability of bump-like standing waves for the NLS equation with δ' -interaction

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The goal of this talk is to establish the orbital (in)stability of standing waves with discontinuous bump-like profile for the nonlinear Schrödinger model with a repulsive δ' -interaction on the line and with power non-linearity. In particular, it is showed that such standing waves are unstable in the energy space under some restrictions for parameters. The use of extension theory of symmetric operators by Krein-von Neumann will be fundamental for estimating the Morse index of self-adjoint operators associated to our stability approach. We also use the analytic perturbation theory and the property of Perron-Frobenius for a repulsive δ' -interaction.