
Damped nonlinear Schrödinger equations

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Abstract

We describe the effect of the introduction of a nonlinear damping in the dynamics of the Schrödinger equation. A superlinear damping prevents finite time blow-up if the damping term grows faster than the focusing nonlinearity at infinity. Moreover, in the presence of confinement (compact manifold or harmonic potential), the global solution converges to zero for large time. On the other hand, introducing a sublinear damping in the linear Schrödinger equation leads to finite time extinction, in the presence of confinement. This talk is based upon joint works with Paolo Antonelli and Christof Sparber, Clément Gallo, Tohru Ozawa.

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