QUASILINEAR DYNAMICS IN NONLINEAR SCHROEDINGER EQUATION WITH PERIODIC BOUNDARY CONDITIONS

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We describe a new scenario of an almost linear behavior in strongly nonlinear systems. This pheomenon is demonstrated for the cubic one dimensional nonlinear Schroedinger equation with periodic boundary conditions, where we have nearly complete understanding of the phenomenon. The nonlinearity gets "averaged out" by the high frequency solutions and this leads to an averaging type theorem for PDEs. This is joint work with M. Burak Erdogan.