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M Burak Erdogan* (berdogan@math.uiuc.edu) and **Vadim Zharnitsky**. *Quasi-linear dynamics in nonlinear Schrodinger equation with periodic boundary conditions.*

It is shown that a large subset of initial data with finite energy (L^2 norm) evolves nearly linearly in cubic nonlinear Schrodinger equation with periodic boundary conditions. More precisely, if the Fourier sequence of the initial data has small ℓ^∞ norm and not very large ℓ^1 norm then there is a linear Schrodinger operator which depends only on the L^2 norm of the initial data such that the nonlinear evolution is close to the linear one in the L^2 sense. These solutions are not perturbations of the known ones such as solitons, semiclassical or weakly linear solutions. (Received February 07, 2008)