1092-35-6 **Alexander Pankov*** (`alexander.pankov@morgan.edu`), 1700 E. Cold Spring Lane, Baltimore, MD 21251. *Nonlinear Periodic Schrödinger Equation, Photonic Crystals, and Gap Solitons.*

A photonic crystal is an optical medium that has spatially periodic (or close to periodic) structure. The main fiture of such a medium is that the spectrum of allowed frequences may gaps tha consit of forbidden frequences. However, if the medium is nonlinear, it possesses spatially localized light patterns with forbidden frequences - the so-called gap solitons.

In certain cases gap solitons can be described as localized solutions of a periodic stationary nonlinear Schrödinger equations. In this talk we present a result on the existence of gap solitons in dimensions one and two. (Received February 21, 2013)

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