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Review text:

A few words in the title and abstract (e.g., "fractal", "classical and quantum systems", "phi to the four type potential", or "example" in place of "interpretation of the solution", etc) seem slightly misleading in not revealing concisely the real contents of this letter. Its text simply describes the results of a number of numerical experiments with certain iterative maps on a discrete one-dimensional lattice with cubic self-interaction.

In introduction the motivation of this work is explained as coming from physics of solids "which are naturally discrete in space due to their atomic structure". One can often reduce the problem there to the ordinary difference (i.e., discretized) form of the nonlinear Schroedinger equation (for non-specialists: its "potential" equals to the modulus squared of the complex wave function, with a coupling c). In the opposite direction, the correspondence between equation and iterative maps is ambiguous, so it would be much clearer and precise if the authors had emphasized that their main attention was being paid to the iterative maps (8) and (12) and to their numerical analysis.

The resulting observed structures of the trajectories of the solutions (with periodic boundary conditions) are illustrated by (untitled) pictures. They are shown to split, roughly speaking, in three (viz., periodic, irregular and random) categories (cf. chapters 6.1., 6.2 and 6.3, respectively). Inspiring speculations and a few extremely interesting conjectures are then being extracted from these results concerning, e.g., the new possible interpretation of the chaos in quantum systems, localization properties in the strong coupling limit, the possible emergence of fractal densities and the manifest solitonic behaviour compatible with the well known continuous limit of the system.