

Title :

Dynamic systems generated by the Klein-Gordon-Schrödinger system of equations

Abstract : We study the long time behavior of the solutions for a weakly damped forced nonlinear Klein-Gordon-Schrödinger system

$$iu_t + i\nu u + i\lambda_1|u|^2u - (-\Delta)^\alpha + vu - \lambda_2|u|^2u = f,$$

$$v_{tt} + \gamma v_t + (-\Delta)^\beta + v + v^2 + \lambda_3v^3 - |u|^2 = g,$$

for a given $\alpha, \beta \in (\frac{1}{2}; 1)$ and $\lambda_i \in \{0; 1\} (1 \leq i \leq 3)$ considered in the whole space $\mathbb{R}^d (1 \leq d \leq 3)$. We prove that this system provides an infinite dimensional dynamical system in the phase space that possesses a global attractor \mathcal{A} in the same space and that this attractor is actually more regular.

