

Dynamical behavior of Bose-condensed dipole-active phonons and internal Fröhlich photons in biological media

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Abstract

A theoretical model is developed to discuss the dynamical behavior of Bose-condensed dipole-active phonons and internal Fröhlich photons under the action of the external coherent pumping and damping of quasi-particles in biological media. It is shown that the system displays, under certain conditions, CW, periodic and chaotic behaviors. The nature of bifurcations and the stability of steady state solutions are analyzed in terms of the dependence on different parameters. Finally, the possibility of experimental observation of the phenomena under study is discussed.