Dynamical phase diagram of Su-Schrieffer-Heeger model

J Naji[1*] and R Jafari [2,3]

[1] Department of Physics, Faculty of Science, Ilam University, Ilam, Iran
[2] Department of Physics, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan 45137-66731, Iran
[3] School of Physics, Institute for Studies in Theoretical Physics and Mathematics (IPM), P.O. Box 19395-5531, Tehran, Iran

E-mail: j.naji@ilam.ac.ir

Abstract
In this paper, we have studied the dynamical phase diagram of the Su-Schrieffer-Heeger model using the notion of dynamical quantum phase transition in the ramped quench case. We have shown that, when the quench crosses both the critical points of the model, the phase diagram of the model includes two regions with dynamical quantum phase transition and no dynamical quantum phase transition. We have shown that if the sweep velocity is smaller than the critical value, the system shows dynamical quantum phase transition. If the quench crosses the single critical point, the system always shows the dynamical quantum phase transition.

For full article, refer to the Persian section