

## Moving and Interaction of Compact-like Pulses in Klein-Gordon Lattice System

XIA Qing-Lin,<sup>1</sup> YI Jian-Hong,<sup>1,2</sup> YE Tu-Ming,<sup>1</sup> and DU Juan<sup>1</sup>

<sup>1</sup> School of Physical Science and Technology and State Key Laboratory for Powder Metallurgy, Central South University, Changsha 410083, China

<sup>2</sup> Department of Materials, Oxford University, Parks Road, Oxford OX1 3PH, UK

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**Abstract:** We study the moving and interaction of the compact-like pulses in the system of an anharmonic lattice with a double well on-site potential by a direct algebraic method and numerical experiments. It is found that the localization of the compact-like pulse is related to the nonlinear coupling parameter  $C_{nl}$  and the potential barrier height  $V_0$  of the double well potential. The velocity of the moving compact-like pulse is determined by the linear coupling parameter  $C_l$ , the localization parameter  $q$  (the nonlinear coupling parameter  $C_{nl}$ ) and the potential barrier height  $V_0$ . Numerical experiments demonstrate that appropriate  $C_l$  is not detrimental to a stable moving of the compact-like pulse. However, the head on interaction of two compact-like pulses in the lattice system with comparatively small  $C_l$  leads to the appearance of a discrete stationary localized mode and small amplitude nonlinear oscillation background, while moderate  $C_l$  results in the emergence of two moving deformed pulses with damping amplitude and decay velocity and radiating oscillations, and biggish  $C_l$  brings on the appearing of four deformed kinks with radiating oscillations and different moving velocities.

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Key words: Klein-Gordon lattice, compact-like pulse, moving, interaction

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