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Excitation spectra of solitary waves in scalar field models with polynomial self-interaction

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We study excitations of solitary waves - the kinks - in scalar models with degree eight polynomial self-interaction in $(1+1)$ dimensions. We perform numerical studies of scattering of two kinks with an exponential asymptotic off each other and analyse the occurring resonance phenomena. We connect these phenomena to the energy exchange between the translational and the vibrational modes of the colliding kinks. We also consider the interaction of two kinks with power-law asymptotic; the latter leads to a long-range interaction between the two kinks.

Presentation type

Section talk (10+5 min)

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