

SAIP 2011



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Wave-packet scattering off a soliton

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Content :

We investigate the scattering of a wave-packet off a soliton in the (1+1) dimensional kink model. We solve the classical, time-dependent field equation numerically subject to the initial condition that the wave-packet is widely separated from the kink soliton at very early times and propagates towards the soliton. After some time the wave-packet interacts with the static soliton and departs from it at later times. At very late times the wave-packet is finally again separated from the soliton. We then extract the scattering matrix from the distorted wave-packet and compare it to the known result from the static scattering calculation. This investigation constitutes a first step towards studying crossing symmetry in soliton models, i.e. in a framework beyond perturbation theory.

Level (Hons, MSc, PhD, other)? :

MSc

Consider for a student award (Yes / No)? :

Yes

Short Paper :

Yes

Primary authors : Mr. ABDELHADY, Ahmed (Stellenbosch University)

Co-authors : Prof. WEIGEL, Herbert (Stellenbosch University)

Presenter : Mr. ABDELHADY, Ahmed (Stellenbosch University)

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