

## Controlling Quantum State Transfer in Spin Chain with Confined Field

CHEN Bing and SONG Zhi

Department of Physics, Nankai University, Tianjin 300071, China  
(Received: 2005-12-1; Revised: )

Abstract: As a demonstration of the spectrum-parity matching condition (SPMC) for quantum state transfer, we investigate the propagation of single-magnon state in the Heisenberg chain in the confined external tangent magnetic field analytically and numerically. It shows that the initial Gaussian wave packet can be retrieved at the counterpart location near-perfectly over a longer distance if the dispersion relation of the system meets the SPMC approximately.

PACS: 73.23.Hk, 05.40.-a, 03.65.-w, 42.25.Bs

Key words: quantum state transfer, spin chain, confined field

[\[Full text: PDF\]](#)

Close