

Abstract Submitted
for the DAMOP07 Meeting of
The American Physical Society

Soliton-soliton interaction in $F=1$ spinor Bose-Einstein condensates TAKAHIKO MIYAKAWA, Tokyo University of Science, HIROYUKI ABE, YUKO FUKUYO — We consider a cold atomic gas with hyperfine spin $F=1$ at zero temperature. It was found that the multi-component Gross- Pitaevskii equations describing the dynamics of a spinor Bose- Einstein condensate in one dimension have one soliton solution. We derive an exact expression for two-soliton solution in order to investigate spin dependent forces among solitons. We also examine soliton-soliton collisions and show some aspects of the spin mixing dynamics and bound state formation in low-energy collisions.

Takahiko Miyakawa
Tokyo University of Science

Date submitted: 02 Feb 2007

Electronic form version 1.4