

1131-45-325

Lichen Zhao* (zhaolichen3@nwu.edu.cn). *Several Localized Waves Induced by Linear Interference between a Nonlinear Plane Wave and Bright Solitons.*

We investigate linear interference effects between a nonlinear plane wave and bright solitons, which are admitted by pair-transition coupled two-component Bose-Einstein condensate. We demonstrate the interference effects can induce several localized waves possessing distinctive wave structures, mainly including anti-dark soliton, W-shaped soliton, multi-peak soliton, Kuznetsov-Ma like breather, and multi-peak breather. Especially, the explicit conditions for them are clarified by a phase diagram based on the linear interference properties. Furthermore, the interactions between these localized waves are discussed. The detailed analysis indicate that soliton-soliton interaction induced phase shift brings the collision between these localized waves be inelastic for soliton involving collision, and be elastic for breathers. These characters come from that the profile of solitons depend on relative phase between bright soliton and plane wave, and the profile of breathers do not depend on the relative phase. These results would motivate more discussions on linear interference between other nonlinear waves. Especially, the soliton or breather obtained here is proven to be not related with modulational instability. The underlying reasons are discussed in detail. (Received July 18, 2017)