



## The study of twin phase solitons interaction and switching

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### Abstract

Cavity solitons as part of dissipative localized structures have been of great interest. In cavity, there must be the double balance between dispersion phenomenon and nonlinear phenomena and at the same time the cavity losses are made up for by pumping continuous-wave coherent driving which leads to the formation of *Spatio-temporal* soliton. In previous studies *z* direction has neglected in the cavity. By taking into account of this direction the new type of solitons named “phase soliton” is introduced. In this paper, we studied the ring cavity in more detail and the interaction of double phase soliton. We find out, switching ON and OFF process of phase soliton. Also the optimal conditions for switching ON/OFF was determined.

**keywords:** nonlinear optics, cavity solitons, phase solitons, optical switching

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