9.7 cm

SOLITON COLLISIONS AS INTERMITTENCY IN BLOCH DOMAIN WALL

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The results of a numerical examination of Bloch wall model are discussed. We use the following method of nonlinear dynamics: measurement of the time intervals between the moments when the trajectory crosses a Poincare section. Using this method we are able to observe intermittency phenomena in which during the laminar phase the orbit length is constant. This effect is not readily observed in a phase portrait or in the time domain. We show that this kind of intermittency is due to two soliton collisions in which an additional, short lived soliton is sometimes created. The effect of the drive field, wall height and boundary conditions of the system is discussed. The effect of symmetry breaking in the orientation of magnetic moments at the midplane of the wall during the intermittency is shown.

13.4 cm

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