Pattern formation by kicked solitons in the two-dimensional Ginzburg-Landau medium with a transverse grating

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Résumé en anglais	We consider the kick- (tilt-) induced mobility of two-dimensional (2D) fundamental dissipative solitons in models of bulk lasing media based on the 2D complex Ginzburg-Landau equation including a spatially periodic potential (transverse grating). The depinning threshold, which depends on the orientation of the kick, is identified by means of systematic simulations and estimated by means of an analytical approximation. Various pattern-formation scenarios are found above the threshold. Most typically, the soliton, hopping between potential cells, leaves arrayed patterns of different sizes in its wake. In the single-pass-amplifier setup, this effect may be used as a mechanism for the selective pattern formation controlled by the tilt of the input beam. Freely moving solitons feature two distinct values of the established velocity. Elastic and inelastic collisions between free solitons and pinned arrayed patterns are studied too.
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