Rogue waves on the general periodic travelling waves background for an extended modified Korteweg-de Vries equation

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Abstract

Under consideration in this paper is rogue waves on the general periodic travelling waves background of an integrable extended modified Korteweg-de Vries equation. The general periodic travelling wave solutions are presented in terms of the sub-equation method. By means of the Darboux transformation and the nonlinearization of the Lax pair, we present the first-, second- and third-order rogue waves on the general periodic travelling waves background. Furthermore, the dynamic behaviors of rogue periodic waves are elucidated from the viewpoint of three-dimensional structures.

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