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Exact Solutions of Nonlinear Dynamics Equation in a New Double-Chain Model of DNA

QIAN Xian-Min[1,2,3] and LOU Sen-Yue[1,4]

[1] Department of Physics, Shanghai Jiao Tong University, Shanghai 200030, China
[2] Physics Department, Shaoxing College of Arts and Sciences, Shaoxing 312000, China
[3] State Key Laboratory of Scientific and Engineering Computing, Institute of Computational Mathematics and Scientific Engineering Computing, Academy of Mathematics and Systems Sciences, Academia Sinica, P.O. Box 2719, Beijing 100080, China
[4] Physics Department, Ningbo University, Ningbo 315211, China
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Abstract: The exact solutions of the general nonlinear dynamic system in a new double-chain model of DNA are studied by using both the Conte's Painlevé truncation expansion and the Pickering's truncation expansion. The symmetric kink-kink shape excitations can be found in both the Conte's truncation expansion and the Pickering's truncation expansion. Three types of new localized excitations, the asymmetric kink-kink excitations, the soliton-kink excitation, and the kink-soliton excitations, are found by using the Pickering's nonstandard truncation expansion.

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Key words: double chain-model of DNA, truncation expansion, exact solution

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