Exact Localized and Periodic Solutions of the Ablowitz-Ladik Discrete Nonlinear Schrödinger System

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We have studied, analytically, the Ablowitz-Ladik discrete nonlinear Schrödinger system. We have found a set of exact solutions which includes as particular cases periodic solutions in terms of elliptic Jacobian functions, bright and dark soliton solutions, and quasi-periodic solutions. We have also found the range of parameters where each exact solution exists. – PACS: 02.30.Jr, 05.45.Yv, 42.65.Tg, 02.30.Gp.

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