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Gino Biondini*, State University of New York at Buffalo, Department of Mathematics, Buffalo, NY 14260. *The Ablowitz-Ladik system with linearizable boundary conditions.*

I will discuss boundary value problem (BVPs) for the Ablowitz–Ladik (AL) system on the natural numbers with linearizable boundary conditions. In particular, I will present: (i) a discrete analogue of the Bäcklund transformation that was used to solve similar BVPs for the nonlinear Schrödinger equation; (ii) an explicit linearizing transformation for the Bäcklund transformation is provided; (iii) explicit relations among the norming constants associated with symmetric eigenvalues; (iv) conditions for the existence of self-symmetric eigenvalues; (v) several exact soliton solutions, illustrating the above results and describing the soliton reflection at the boundary, with or without the presence of self-symmetric eigenvalues. (Received January 17, 2017)