

A New Integrable Symplectic Map of Neumann Type

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Abstract: By resorting to the nonlinearization approach, a Neumann constraint associated with a discrete 3×3 matrix eigenvalue problem is considered. A new symplectic map of the Neumann type is obtained through nonlinearization of the discrete eigenvalue problem and its adjoint one. The generating function of integrals of motion is presented, by which the symplectic map is further proved to be completely integrable in the Liouville sense.

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Key words: Neumann constraint, symplectic map, Liouville integrability

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