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Poisson Yang-Baxter maps with binomial Lax matrices

Theodoros E. Kouloukas, Vassilios G. Papageorgiou

(Submitted on 1 Jun 2011 (v1), last revised 4 Jun 2011 (this version, v2))

A construction of multidimensional parametric Yang-Baxter maps is presented. The corresponding Lax matrices are the symplectic leaves of first degree matrix polynomials equipped with the Sklyanin bracket. These maps are symplectic with respect to the reduced symplectic structure on these leaves and provide examples of integrable mappings. An interesting family of quadrirational symplectic YB maps on $\mathbb{C}^4 \times \mathbb{C}^4$ with 3×3 Lax matrices is also presented.

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