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R-matrix valued Lax pair for elliptic Calogero systems and the associative Yang-Baxter equation

The rational Calogero-Sutherland-Moser model is originally a system of identical particles scattering on the line with inverse-square potential. There are also trigonometric, hyperbolic and elliptic version of this model. The integrability of the model follows from the presence of a Lax pair.

The Calogero system of type A admits the so-called R-matrix Lax pair presentation, the matrix elements are expressed in terms of the quantum GL_N Baxter-Belavin elliptic R-matrices. For $N = 1$ this construction reproduces the Krichever's Lax pair with spectral parameter. The equations of motion follow from the associative Yang-Baxter equation for the elliptic Baxter-Belavin R-matrix.

I will tell how to extend the Kirillov's B-type associative Yang-Baxter equations to the similar relations depending on the spectral parameters and to construct an R-matrix valued for the Calogero-Inozemtsev of BC_n type. General construction uses the elliptic Shibukawa-Ueno R-operator and the Komori-Hikami K-operators satisfying reflection equation. Then, using the Felder-Pasquier construction the answer for the Lax pair is also written in terms of the elliptic Baxter-Belavin R-matrix.

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