

Friday, February 3rd (at 4.00pm, UK time)

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Title: Anisotropic spin generalization of elliptic Ruijsenaars-Macdonald operators and R-matrix identities.

ABSTRACT

We propose commuting set of matrix-valued difference operators in terms of the elliptic Baxter-Belavin R-matrix in the fundamental representation of $GL(M)$. In the scalar case $M = 1$ these operators are the elliptic Ruijsenaars-Macdonald operators, while in the general case they can be viewed as anisotropic versions of the quantum spin Ruijsenaars Hamiltonians.

In the scalar case Ruijsenaars proved that commutativity of the operators written in the form with arbitrary function is equivalent to the system of functional equations. The elliptic Kronecker function (and its trigonometric and rational degenerations) solves this system.

We show that commutativity of the operators for any M is equivalent to a set of R-matrix identities and prove them for the elliptic Baxter-Belavin R-matrix.

The talk is based on joint work with Andrei Zotov [arXiv:2201.05944](https://arxiv.org/abs/2201.05944) and [arXiv:2202.01177](https://arxiv.org/abs/2202.01177).
