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R-matrices of affine Yangians

Thursday 19 September 2024 11:00 (1 hour)

Let $\mathfrak{g}$ be an affine Lie algebra and $Y_\hbar(\mathfrak{g})$ be the Yangian associated to $\mathfrak{g}$. Unlike its finite counterpart, the affine Yangian is not known to possess a universal R–matrix. In particular, one does not immediately have solutions of the quantum Yang–Baxter equation on an appropriate category of representations of the affine Yangian. The sole exception is the Maulik–Okounkov theory, which provides rational solutions to QYBE, on representations coming from the geometry of quiver varieties.

In this talk I will present a construction of two meromorphic R–matrices, related by a unitarity relation, for category $\mathcal{O}$ representations of $Y_\hbar(\mathfrak{g})$. I will show that our R–matrices can be normalized on highest–weight representations in order to obtain rational solutions to QYBE. This talk is based on joint works with Andrea Appel, Valerio Toledano Laredo and Curtis Wendlandt.

Presenter: GAUTAM, Sachin (The Ohio State University)