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Title:

“Towards the Gravity/CYBE correspondence”

Abstract:

Based on the formulation of Yang-Baxter sigma models proposed by Klimcik and Delduc-Magro-Vicedo, we have proposed the deformations of the $\text{AdS}_5 \times \text{S}^5$ superstrings based on the solutions of the classical Yang-Baxter equations (CYBE) rather than the modified classical Yang-Baxter equations (mCYBE). From the viewpoint of integrable models, our deformations based on the CYBE could be regarded as a classical analogue of the Dirnfeld-Reshetikhin twists of the quasi-triangular Hopf algebras. Interestingly, the deformed superstring action includes some important deformed supergravity backgrounds such as Lunin-Maldacena-Frolov backgrounds for beta-deformation of $\mathfrak{su}(N)=4$ super Yang-Mills theory and the gravity dual for non commutative gauge theories. Thus, the solutions of the CYBE characterize the deformations of gravity backgrounds. These relations may be called as “the Gravity/CYBE correspondence”. We also discuss the generalization to the $\text{AdS}_5 \times T^{1,1}$ background, which is known to be non-integrable.

This poster is based on the collaborations with P. Marcos Crichigno and Io Kawaguchi and the series work; arXiv: 1401.4855, 1402.6147, 1404.1838, 1404.3657, 1406.2249.