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Anomalous Dimensions of Heavy Operators from Magnon Energies

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Abstract content (Max 300 words)
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We propose operators with definite scaling dimension, dual to submaximal giant gravitons. Our analysis makes heavy use of techniques using group representation theory. The systems we study consist of strings suspended between maximal and submaximal giant gravitons and are described using spin chains with boundaries. The system enjoys an $su(2|2)$ symmetry which determines the anomalous dimensions in the gauge theory. Complete agreement with energies computed in the dual string theory is demonstrated. Further, the symmetry determines the reflection/scattering matrices for boundary and bulk magnons. The resulting S-matrix passes a number of highly non-trivial checks. The boundary condition on the open spin chain is inconsistent with the Yang-Baxter equation so that ultimately the system is not integrable.

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Yes

Level for award (Hons, MSc, PhD, N/A)?

PhD

Main supervisor (name and email) and his / her institution

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