

The orientifold quotient of giant gravitons

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The AdS/CFT correspondence links type IIB string theory on $AdS_5 \times S^5$ to $\mathcal{N} = 4$ super Yang-Mills with gauge group $U(N)$. In 1998, Witten showed that taking an orientifold quotient of the S^5 factor - identifying anti-podal points so as to replace S^5 with \mathbb{RP}^5 - can be understood on the gauge theory side by replacing the $U(N)$ gauge group with either $SO(N)$ or $Sp(N)$. I will talk about this quotient from the gauge theory point of view, focusing on the half-BPS sector. This corresponds to taking the quotient of rotating D3-brane states, also called giant gravitons. The mathematics of this quotient leads to surprising connections with plethysms and domino tableaux, which can be tied back to intuitive notions of how the orientifold acts on the branes.

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