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Two-loop cusp anomaly in ABJM at strong coupling

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We compute the null cusp anomalous dimension of ABJM theory at strong coupling up to two-loop order. This is done by evaluating corrections to the corresponding superstring partition function, weighted by the AdS4×CP3 action in AdS light-cone gauge. We compare our result, where we use an anomalous shift in the AdS4 radius, with the cusp anomaly of N=4 SYM, and extract the two-loop contribution to the non-trivial integrable coupling h(λ) of ABJM theory. It coincides with the strong coupling expansion of the exact expression for h(λ) recently conjectured by Gromov and Sizov. Our work provides thus a non-trivial perturbative check for the latter, as well as evidence for two-loop UV-finiteness and quantum integrability of the Type IIA AdS4×CP3 superstring in this gauge.
Based on the paper arXiv:1407.4788.

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