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Modularity and Resurgence for N=4 Integrated Correlators

Monday 2 September 2024 12:00 (30 minutes)

I will describe a surprisingly simple representation of a class of integrated correlation functions of four superconformal primaries in the stress tensor multiplet of $\mathcal{N} = 4$ supersymmetric Yang-Mills theory with arbitrary simple gauge group, G. I then present exact formulae for these integrated correlators which are manifestly invariant under GNO electro-magnetic duality. For classical gauge groups, G = SU(N), SO(N), USp(2N), in the large-N limit these correlators are interpreted via holography in terms of the low-energy expansion of type IIB superstring amplitudes in $AdS_5 \times S^5$ or an orientifold thereof.

From the asymptotic perturbative large-N expansion of these integrated correlators we can reconstruct non-perturbative, but modular invariant exponentially suppressed terms via resurgence analysis.

Link to publication (if applicable)

2405.10204 with Treilis, 2310.12322 with Alday, Chester, Green, Wen, 2308.15252 with Vallarino, 2210.14038 with Green, Wen, Xie

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