

Modularity and Resurgence for $N=4$ Integrated Correlators

Wednesday, May 22, 2024 4:15 PM (1 hour)

I will describe a surprisingly simple representation of a class of integrated correlation functions of four superconformal primaries in the stress tensor multiplet of $N=4$ 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, $G=\text{SU}(N)$, $\text{SO}(N)$, $\text{USp}(2N)$, In the large- N limit these correlators are interpreted via holography in terms of the low-energy expansion of type IIB superstring amplitudes in $\text{AdS}_5 \times \text{S}^5$ 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.

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