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Large charge meets semiclassics in N=4 Super Yang-Mills

Tuesday, June 17, 2025 2:30 PM (1 hour)

In this talk we discuss the large charge sector of N=4 Super Yang-Mills (SYM) with $SU(N)$ gauge group by constructing a special class of half-BPS heavy operators, termed “canonical operators”. In the large-charge ‘t Hooft limit canonical operator insertions map N=4 SYM onto the Coulomb branch by assigning a classical profile to the scalar fields with non-vanishing values along the diagonals given by the roots of unity. We follow a semiclassical approach to study two-point, three-point and Heavy-Heavy-Light-Light (HHLL) correlators, and provide consistent evidence of our findings by computing the same observables via supersymmetric localization.

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