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Large R-charge Limit for Extremal Correlators in D=4 $\mathcal{N} = 2$ SCFTs with rank 1

In this poster we deal with the study of two-point extremal correlators involving the Coulomb branch chiral ring generator of rank 1 $\mathcal{N} = 2$ superconformal field theories in a four dimensional spacetime under the large R-charge Limit. We start with three Argyres-Douglas theories, for which recent results in literature show how to compute the aforementioned correlators using the localization on the 4-sphere. The importance of the large R-charge Limit is that we can compare these results with those coming from the EFT approach, in the guise of perturbative expansions for the correlators. In this regard, we expose some results about the goodness of a particular ansatz for the partition function in the localization procedure that produces a good match with the outcomes from the EFT method. Up to now we have been in the zero instanton sector, so, in order to probe the formula coming from the EFT procedure, we consider $\mathcal{N} = 2$ SQCD with $SU(2)$ gauge group and $N_f = 4$ and we add the contribution of instantons to the partition function. Results in this sense show that their presence does not change the relevant structure of the perturbative expansion, which is exactly the one captured by the EFT technique.

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