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1/4-BPS latitude Wilson loops in $AdS_5 \times S^5$ at strong coupling

We study the strong coupling behaviour of 1/4-BPS latitude Wilson loops in $N=4$ SYM theory, computing the one-loop corrections to the relevant classical string solution in $AdS_5 \times S^5$ in sigma-model perturbation theory. The approach is based on the application of the Gel'fand-Yaglom method to compute the functional determinants for the fluctuations of the type IIB Green-Schwarz action expanded around the minimal-area surface. We normalize the vev of the Wilson loops with respect to the 1/2-BPS circular case to circumvent the problem of determining the overall constant contribution from a rigorous definition of the string path integral. We find a discrepancy with the result obtained via localization in the gauge theory, and we discuss some issues that might be responsible for this outcome of the one-loop analysis. We comment on a similar result recently obtained in [arXiv:1601.04708](#) that confirms this unexpected mismatch.

The talk is mainly based on [arXiv:1512.00841](#).