Generalizations of Reflected Entropy and the Holographic Dual

Jinwei Zhu
(Affiliation: Department of Physics, Fudan University)

Yang Zhou: yangzhou1984@gmail.com

Abstract: We introduce a new class of quantum and classical correlation measures by generalizing the reflected entropy to multipartite states. We define the new measures for quantum systems in one spatial dimension. For quantum systems having gravity duals, we show that the holographic duals of these new measures are various types of minimal surfaces consist of different entanglement wedge cross sections. One special generalized reflected entropy is Δ_R , with the holographic dual proportional to the so called multipartite entanglement wedge cross section Δ_W defined before. We then perform a large c computation of Δ_R and find precise agreement with the holographic computation of $2\Delta_W$. This agreement shows another candidate Δ_R as the dual of Δ_W and also supports our holographic conjecture of the new class of generalized reflected entropies.

References

[1] S. Dutta and T. Faulkner, "A canonical purification for the entanglement wedge cross-section," arXiv:1905.00577 [hep-th].
[2] Jinwei Chu, Runze Qi and Yang Zhou, "Generalizations of Reflected Entropy and the Holographic Dual," arXiv:1909.10456 [hep-th].