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Generalized volume complexity of AdS rotating black holes

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We explore the generalized volume complexity of odd-dimensional asymptotically Anti-de Sitter (AdS) Myers-Perry black holes with equal angular momenta following the complexity equals anything proposal. Initially, we determine the codimension-one generalized volume complexity by finding the extreme of the generally covariant volume functional. We show that its late-time growth rate aligns with the critical momenta linked to the extremal hypersurface. Consequently, we select the Gauss-Bonnet invariant as the scalar function in the definition of generalized volume complexity to examine the complexity's temporal variation. Interestingly, we note the possibility of numerous pseudo phase behaviors intricately tied to the configurations of the effective potentials related to the codimension-one hypersurface. Nevertheless, the complexity shows a linear growth in the ultimate phase in every scenario. This suggests the consistency of the complexity equals anything proposal with respect to the AdS rotating black holes.

Keyword-1

AdS-CFT Correspondence

Keyword-2

Black Holes

Keyword-3

Gauge-Gravity Correspondence

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