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## Geometric Approach to Symmetries at Finite Temperature

*Monday, 7 April 2025 14:30 (35 minutes)*

Symmetry operators of quantum field theories (QFTs) engineered via stringy backgrounds arise from “branes wrapped at infinity” which topologically link with operators and defects of the QFT. In this talk we show how to calculate the thermal expectation values of symmetry operators in holographic CFTs using the geometry of the gravity dual. Expectation values of zero-form symmetry operators in the CFT are related to branes wrapped on volume minimizing cycles in the bulk, namely the Euclidean continuation of a black hole horizon. We illustrate with a few examples, including duality / triality defects as engineered by bound states of  $[p,q]$  7-branes, and R-symmetries as engineered by metric isometries.

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