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Quantum-corrected anti-de Sitter space-time

Wednesday, January 22, 2025 9:00 AM (40 minutes)

We study the back-reaction of a quantum scalar field on anti-de Sitter (AdS) space-time. The renormalized expectation value of the stress-energy tensor operator (RSET) for a quantum scalar field on global AdS space-time acts as a source term on the right-hand-side of the Einstein equations for the quantum-corrected metric. We find the RSETs for rotating and nonrotating thermal states on global AdS and compare them with results from relativistic kinetic theory. We then solve the quantum-corrected Einstein equations. We interpret these quantum-corrected metrics as asymptotically-AdS solitons.

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