Entropy Bounds for Rotating AdS Black Holes

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Abstract

I will talk about novel thermodynamic inequalities that apply to stationary asymptotically Anti-de Sitter (AdS) black holes. By building on the same logic of the Penrose inequalities, we propose stronger versions of inequalities that relate the area of the black hole to its mass, thermodynamic volume, and angular momenta. To assess the validity of these inequalities, we apply them to a wide range of analytical black hole solutions, observing compelling evidence in their favour. Intriguingly, our findings indicate that these inequalities may also apply for black holes of non-spherical horizon topology, as we show their validity as well for thin black rings in AdS.

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