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Extremal Rotating Black Holes in the Near-Horizon Limit: Phase Space and Symmetry Algebra

Monday, 20 July 2015 14:00 (20 minutes)

We construct the classical phase space of Near-Horizon Extremal Geometries with fixed angular momenta and entropy. Each element in the phase space is a geometry with $SL(2,R) \times U(1)d-3$ Killing isometries which has vanishing SL(2,R) and constant U(1) charges.

In four spacetime dimensions, the symmetry algebra consists of the familiar Virasoro algebra, while in d>4 dimensions the symmetry algebra, the NHEG algebra, contains infinitely many Virasoro subalgebras. The nontrivial central term of the algebra is proportional to the black hole entropy. This phase space might serve as a basis for a semiclassical description of extremal black hole microstates.

This talk is based on http://arxiv.org/abs/1506.07181 and http://arxiv.org/abs/1503.07861

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