



EINLADUNG

im Rahmen des Seminars für Mathematische Physik

zum Vortrag

von

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über

„Some progress in regular black holes“

Abstract:

We study the thermodynamics and dynamics of high-dimensional Einstein-power-Yang-Mills black holes in conformal gravity. Specifically, we investigate a class of conformally related black holes whose metrics differ by a scale factor. We show that a suitable scale factor cures the geodesic incompleteness and the divergence of Kretschmann scalars at the center of black holes.

In the aspect of thermodynamics, we analyse the Hawking temperature, the entropy, and the specific heat, and verify the existence of second-order phase transitions.

We find that the thermodynamics of this class of conformally related black holes is independent of scale factors. In the aspect of dynamics, we find that the quasinormal modes of minimally coupled scalar field perturbations are dependent on scale factors.

Quite interesting is that the behavior of quasinormal mode frequencies also supports the independence of scale factors for the second-order phase transitions.

Our results show that the scale factors produce distinct thermodynamic and dynamic effects in the conformally related Einstein-power-Yang-Mills black holes, which provides an interesting connection between thermodynamics and dynamics of black holes in conformal gravity.

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gez.: S. Fredenhagen, E. Battista