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AdS<sub>5</sub>-Schwarzschild deformed black branes and hydrodynamic transport coefficients. (English) [Zbl 1473.83046](#)

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Summary: A family of deformed AdS<sub>5</sub>-Schwarzschild black branes is here derived, employing the membrane paradigm of AdS/CFT. The solution of the Einstein-Hilbert action, with the Gibbons-Hawking term and a counter-term that eliminates eventual divergences, yields a partition function associated to the dual theory which allows the computation of the entropy, pressure and free energy, as state functions, in the canonical ensemble. AdS/CFT near-horizon methods are then implemented to compute the shear viscosity-to-entropy ratio, then restricting the range of the parameter that defines a family of deformed black branes.

#### MSC:

[83C57](#) Black holes

[83C15](#) Exact solutions to problems in general relativity and gravitational theory

[14D15](#) Formal methods and deformations in algebraic geometry

[81T35](#) Correspondence, duality, holography (AdS/CFT, gauge/gravity, etc.)

[83C56](#) Dark matter and dark energy

[83E30](#) String and superstring theories in gravitational theory

[83C55](#) Macroscopic interaction of the gravitational field with matter (hydrodynamics, etc.)

[76E20](#) Stability and instability of geophysical and astrophysical flows

**Full Text:** [DOI](#) [arXiv](#)

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