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Mimetic gravity in (2 + 1)-dimensions. (English) Zbl 1459.83013

Summary: One of the most important achievements in general relativity has been the discovery of the (2 + 1)-dimensional black hole solutions of Einstein gravity in Anti-de Sitter (AdS) spacetime. In this paper, we construct, for the first time, the (2 + 1)-dimensional solutions of mimetic theory of gravity. These solutions may provide a powerful background to investigate the physical properties of mimetic gravity and examine its viability in lower spacetime dimensions. In particular, some physical properties of stationary black hole solutions of this theory in the presence of charge or angular momentum are investigated.

MSC:
83C15 Exact solutions to problems in general relativity and gravitational theory
83C80 Analogues of general relativity in lower dimensions
83D05 Relativistic gravitational theories other than Einstein’s, including asymmetric field theories
83C57 Black holes

Keywords:
black holes; classical theories of gravity

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