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Scalarization of Reissner-Nordström Black Hole in Scalar-Torsion Teleparallel Gravity

Thursday, 3 December 2026 14:00 (20 minutes)

In this work, we investigate the scalarization of the Reissner-Nordstr¨om black hole within a scalar-tensor teleparallel gravity framework. This approach enables a direct comparison between scalarization mechanisms induced by a scalar field nonminimally coupled to the torsion scalar and those resulting from its coupling to the electromagnetic invariant. We demonstrate the existence of distinct scalarized branches of solutions, classified by the number of nodes of the scalar field. These scalarized black hole solutions are asymptotically flat, and we analyze their thermodynamic properties.

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