

Rotating black holes in Eddington-inspired Born-Infeld gravity

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We construct an exact, rotating charged black hole solution of Eddington-inspired Born-Infeld gravity model [1–3]. The rotating black hole is constructed via a novel procedure to map the field equations of nonlinear Ricci-based metric-affine theories of gravity into the field equations of General Relativity coupled to a different scalar field Lagrangian, and vice versa [4–6]. We discuss in detail the modifications on the innermost region of the corresponding solutions. The regular character of these configurations is discussed according to the completeness of geodesics and the behaviour of curvature scalars. We further elaborate on the potential impact of these findings for gravitational wave astronomy.

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