EQUIVALENCE PRINCIPLE IN REISSNER-NORDSTRÖM GEOMETRY

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The Equivalence Principle is a key element in the development of General Relativity. In one of its formulations, the Equivalence Principle states that a reference frame at rest in a uniform gravitational field is equivalent to a reference frame in uniformly accelerated motion in the absence of any gravitation field. We analyze the spacetime surrounding a non-rotating spherically symmetric charged body, known as Reissner-Nordström geometry, and exhibit a coordinate transformation, which makes explicit its compatibility with the Equivalence Principle.We revisit the Schwarzschild case, previously analyzed in the literature, exhibiting the corrected results, illustrating the importance of considering second order terms in the approximate metric in order for the computed curvature quantities to have meaningful values.