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Derivation of Einstein–Cartan theory from general relativity

RICHARD PETTI, Retired — This article presents a derivation of Einstein–Cartan theory from general relativity with no additional assumptions or parameters. The derivation begins with distributions of Kerr masses that converge to a continuum with constant densities of mass, momentum, and angular momentum. The limit includes torsion and the spin-torsion relationship of Einstein–Cartan theory. The construction of curvature and torsion is equivalent to definition of curvature with Cartan forms on fiber bundles. Advantages of Einstein–Cartan theory include accommodating exchange of classical intrinsic and orbital angular momentum and generation of inflation-like expansion in high density cosmological models.

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