

Abstract Submitted
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Connection Theorem in General Relativity¹ FELIPE ASENJO, Universidad Adolfo Ibez — The magnetohydrodynamic theorem on the conservation of the magnetic connections between plasma elements is generalized to relativistic plasmas in curved spacetime. This is achieved by using a generalized Ohm's law that contains Hall effect and electron pressure. The connections between plasma elements, which are established by a covariant connection equation, display a particularly complex structure in curved spacetime. It is shown that these connections can be interpreted in terms of magnetic field lines alone by adopting a $3+1$ foliation of spacetime. The consequences of thermal-inertial effects are discussed. This theorem is a key step in order to define magnetic reconnection in high-energy plasmas in General Relativity. Implications are outlined

¹Fondecyt-Chile No. 1180139

Felipe Asenjo
Universidad Adolfo Ibez

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