

The relativity of inertia and reality of nothing

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Abstract

The determination of inertia by matter is looked at in general relativity, where inertia can be represented by affine or projective structure. The matter tensor T seems to underdetermine affine structure by ten degrees of freedom, eight of which can be eliminated by gauge choices, leaving two. Their physical meaning---which is bound up with that of gravitational waves and the pseudotensor t , and with the conservation of energy-momentum---is considered, along with the dependence of reality on invariance and of causal explanation on conservation.

Keywords: relativity, Mach's principle, Einstein, inertia, gravitation, gravitational waves

Subjects: [Specific Sciences: Physics: Symmetries/Invariances](#)
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