

# Does Lorentz Force Law Contradict the Principle and Theories of Relativity for Uniform Linear Motion?

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I show that no force or torque is generated in cases involving a charge and a magnet with their relative velocity zero, in any inertial frame of reference. A recent suspicion of an anomalous torque and conflict with relativity in this case is rested. What is distilled as 'Lorentz force' in standard electrodynamics, with relative velocity as the parameter, is an under-representation of two distinct physical phenomena, an effect due to Lorentz contraction and another due to the Ampere current-current interaction, rolled into one due to prejudice from special relativity applied only to linear motion. When both are included in the analysis of the problem there is no anomalous force or torque, ensuring the validity of Poincare's principle of relativity. The issue of validity of electrodynamics without the concept of absolute rest, however, is subtle and empirically open when general noninertial motion is considered, as I will discuss in another paper.

Comments: 8 pages (12pt), 3 figures. Comments pertaining to [arXiv:1205.0096](#)

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