Time reversal in classical electromagnetism

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Abstract

Richard Feynman has claimed that anti-particles are nothing but particles `propagating backwards in time'; that time reversing a particle state always turns it into the corresponding anti-particle state. According to standard quantum field theory textbooks this is not so: time reversal does not turn particles into anti-particles. Feynman's view is interesting because, in particular, it suggests a nonstandard, and possibly illuminating, interpretation of the CPT theorem.

In this paper, we explore a classical analog of Feynman's view, in the context of the recent debate between David Albert and David Malament over time reversal in classical electromagnetism.

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