

The Need for a First-order Quasi Lorentz Transformation

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Solving electromagnetic scattering problems involving non-uniformly moving objects requires an approximate but consistent extension of Einstein's Special Relativity theory, which originally is valid for constant velocities only. For moderately varying velocities a quasi Lorentz transformation is presented. The conditions for form-invariance of the Maxwell equations, the so-called "principle of relativity," are shown to hold for a broad class of motional modes and time scales. A simple example of scattering by a harmonically oscillating mirror is analyzed in detail. Generally orbiting objects are discussed.

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