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Charged Particles are Preventing from Moving Faster than the Speed of Light by Light Itself RANDY WAYNE, Department of Plant Biology, Cornell University, Ithaca, NY 14853 — Many problems in classical mechanics are solved by assuming that friction is negligible. At velocities close to the speed of light, however, friction is never negligible as a consequence of the dilatant optical molasses that results from the temperature-dependent blackbody distribution of photons. A body moving at relativistic velocities experiences the blackbody radiation as being Doppler shifted. This adds a nonlinear velocity-dependent component of friction. By accounting for this thermodynamic friction, I have obtained an equation of motion that is applicable for modeling the movement of particles at relativistic velocities. While the predictions of the opto-mechanical model are qualitatively consistent with the predictions of the Theory of Special Relativity in terms of the nonlinear relationship between force and acceleration, there are quantitative and testable differences.

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