

Abstract Submitted
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Some Consequences of a Time Dependent Speed of Light FELIX

T. SMITH, SRI International — For reasons connected with both cosmology (the flatness and horizon problems) and atomic physics (n-body Dirac equation, etc.), various proposals have been made to modify general or special relativity(SR) to accommodate a cosmologically decreasing light speed [J. Magueijo, Rep. Prog. Phys. **66**, 2025 (2003)]. Two such theories, projective SR [S.N. Manida, gr-qc/9905046; S. S. Stepanov, physics/9909009 and Phys. Rev. D, **62**, 023507 (2000)] and symmetric SR [F.T. Smith, Ann. Fond. L. de Broglie, **30**, 179 (2005)] adapt special relativity to in different ways to an expanding, hyperbolically curved position space and predict time-dependences of c within reach of measurement but differing by a factor of two. Both theories bring in a new constant $\lambda^{-1} = \sigma = c^2 H_0^{-1}$. As Magueijo points, out the role of c in physics and cosmology is so profound that many deep changes must follow if is not absolutely invariant in space and time. In particular, symmetric SR brings a new light to the Dirac large-number relationship between the constants of gravitation and atomic physics.

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