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PRESENTATION CHARTS:

Relativistic Formulation of

Cosmic Acceleration vs. Cosmic Deceleration

in the Local Universe

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SYNOPSIS

Deep MOND and the Baryonic Tully-Fisher Relation show far-field gravitation around spiral galaxies declining inversely with radius while Type Ia supernova distance-measurements point to cosmic acceleration, both phenomena unexplained by general relativity (GR). However, when Einstein's isotropic light-speed is succeeded by more fundamental anisotropic light-speed - specifically, unbounded inward with c/2 outward -

within Hubble space-expansion, an outward-reaching and empirically significant cosmic time dilation emerges as the basis for deriving and explaining (pure) cosmic acceleration, $a = rH_2$. Given this formulation, Einstein's cosmological constant may be expressed as $\Lambda = 3H_2/c_2$ within the GR field equations. Combined cosmic acceleration – i.e., pure cosmic acceleration counteracted by (baryonic) GR and subfield cosmic decelerations – is in accord with SNIa luminosity-magnitude (median) residuals in the $0.01 \leq z \leq 0.3$ redshift range, where the significant complications at greater redshifts are postponed; "Cross-over" is at z=0.007. Uniting outward-reaching time-dilation with Schwarzschild-solution time dilation allows modeling of 1/r far-field gravitation around spiral galaxies thereby giving a relativistic formulation of Milgrom's Deep MOND. Both advances exhibit the empirical

universal acceleration scale
1.2E-10 m/s^2 and are in accord with Einstein's gravitational effects near the Sun. Combining subfield gravity and Schwarzschild gravity gives cross-over of the two components at near 7,000 AU from the Sun, in agreement with far-field
wide binary star rotation measurements. While special relativity is revised at its foundation, standard relativity theory has been central in the present deeper development.

CHARTS OVERVIEW

The attached charts, presented at the 99th AAAS-PD Conference (Pomona, June; Revised 23 September 2018), give the advances to date since the 29th Texas Relativistic Astrophysics Symposium (Cape Town, December) and the 2018 APS April Conference (Columbus). In addition to reiterating outward-reaching cosmic time dilation as essential to cosmic acceleration, the two new advances are: (1) defining the combined or overall cosmic acceleration/deceleration ([emergent] cosmic acceleration + [emergent] subfield deceleration + [non-emergent, or essential] Newtonian/GRT deceleration); and (2) defining the Cosmological Constant (i.e., within the context of the Einstein

Field Equations). Comparisons are given of present theory against measurements of: (a) wide-binary-star rotation flattening; (b) spiral galaxy (Baryonic T-F Relation) rotation flattening; and (c) SNIa supernova measurements in the "nearby" universe (0.01<z<0.3). Rizzi, et al., ("Synchronization Gauges and the Principles of Special Relativity", 2008) and Chamberlain (2015) concluded anisotropic light-speed is more fundamental than Einstein's (special case) isotropic "c=constant" light-speed—where the Rizzi et al. contribution demonstrated that the Maxwell equations
with extra terms
remain valid.

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