2018 Annual Meeting of the APS Far West Section
October 18-20, 2018
Cal State Fullerton
Fullerton, CA

PRESENTATION CHARTS:

Derivation of Cosmic Acceleration

Given Anisotropic Light-Speed

in the Hubble Expansion

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CONFERENCE–SESSION ABSTRACT

The Baryonic Tully-Fisher Relation shows far-field gravitation around spiral galaxies declining as 1/r while Type Ia supernovas 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 a cosmic time dilation emerges for deriving (pure) cosmic acceleration, aCF = rH2. Net 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 ≤ z ≤ 0.3 redshift range, where the significant complications at greater redshifts are postponed. Uniting cosmic time-dilation with Schwarzschild-solution time dilation allows modeling of 1/r far-field gravitation around galaxies giving a relativistic formulation of Milgrom's Deep MOND. Both advances exhibit the empirical
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
wide binary star
rotation measurements.

CHARTS OVERVIEW

The attached charts, presented at the 2018 Annual Meeting of the APS Far West Section (Fullerton, 19 October) comprise the (Rev-1 refined) chart-set presented at the June 2018 AAAS-PD conference in Pomona, with the following exceptions:

1.

Addition of a chart entitled “Pure Cosmic Acceleration: Derivation” (#7); and

2.

Removal of two (background) charts to stay within the allotted 12 minutes—including Q&As.

Item (a) is the principal advance (late September), wherein cosmic time-dilation $d\Delta t'/dt = -rH/c$ along lookback distance/time is “rotated” into epochal distance/time giving $d\Delta t'/dt = -(rH/c)^2$, which is then radially differentiated within the Lorentz Transformation to yield cosmic acceleration $a_{CF} = rH^2$. (A paper nearing completion will give this advance, as well as [similarly long in progress] a derivation of subfield time-dilation and gravitation—based on the well-established Equivalence Principle and Lorentz Transformation.)

papers/APS-FW-1.PPT