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Speed of Light: same everywhere? HANS H. FLEISCHMANN, Appl. Phys., Cornell University — Analyzing the conceptual-physics consequences and interpretation of Einstein's GR, the spatial dependence of the light velocity, c, is considered - in particular the known disagreement between the "locally measured" $c = c_o$ and the slower average speed predicted and observed in Shapiro's experiments. The usual GR formula for Shapiro's delay time, T, (e.g. (9.91) in James B. Haertle, Gravity, Addison Wesley, 2003, page 214), is essentially identical with a straight-line earth-reflector-and-back integral, using a variable local $c = c_o(1 - 2M/r)$. And, a small change of the earth radius, r_E will change the total T equivalent to that velocity at $r = r_E$. The locally measured c at the minimum radius, r_1, is given by putting the "earth's" and "reflector's" positions symmetrically around r_1, at a distance $dx = r_1 d\varphi$. In this case, a dx-expansion of formula (9.90) in Haertle leads to a non-Newton delay time, $dT = (2.5M/r_1)dx/c_o$ - possibly indicating a small anisotropy of c. Thus, the interpretation of c_o as a constant locally-measured speed, c_o, clearly seems inconsistent with accepted GR calculations of the Shapiro-type measurements. Further results will be reported.

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