

A prediction of Difference between the Doppler-shift-formulae for High-frequency-Light and Very-low-frequency Electromagnetic-waves; and a supportive observational-evidence

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Abstract

In a paper titled: Explanation for the observed wave/particle duality of light (Tank, H. K. [viXra:1402.0153](#)), it was explained that: “At the frequencies of light, generation and filtering of purely monochromatic light of one Hertz bandwidth is technically not yet possible; so there has been quite a wide band of electromagnetic waves involved in the experiments performed so far. And since this wide band of waves coherently add only at discrete points in space, and mutually nullify their amplitudes at rest of the points, the ‘wave-packets’ get formed; which the detectors detect as ‘particles’. If the electromagnetic waves were always in the form of waves as well as particles, then even at radio frequencies we must observe ‘particles’ of radio-waves in addition to the ‘waves’ observed on oscilloscopes.” Then in a paper titled: What needs to be known about the collapse of quantum-mechanical wave-function (Tank, H. K. [viXra:1407.0139](#)) it was explained that de Broglie’s wave actually describes the ‘envelope-variations’ of superimposition of a wide band of the actual waves; and when there is a relative velocity between the source of light and observer, the width of the band also either shrinks or expands. And as was described in a paper titled: “Wave-theoretical insight into the Relativistic ‘length-contraction’ and ‘time-dilation’ of super-novae light-curves” (Tank, H. K. [viXra:1407.0144](#)) , shrinking of bandwidth means ‘time-dilation’. From these papers we find that at the frequencies of light, there are two factors affecting the Doppler-shift, namely classical Doppler-shift plus time-dilation. Whereas in the case of low-frequency electromagnetic waves, since they can be produced or filtered as narrow-band as single Hertz, only the formula for classical Doppler-shift is expected to be applicable. And there is a supportive evidence also for the above prediction; as reported in a paper attempting to explain the Pioneer anomaly, titled: (-----) it was concluded that the observations seem to favor applicability of classical formula for Doppler-shift, rather than the Relativistic one.

Detailed paper will follow soon.