

THE UNIQUE REFERENCE FRAME - IS IT SUPERFLUOUS OR ESSENTIAL IN SPECIAL RELATIVITY?

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While it is widely accepted that the concept of a unique frame of reference (UFR) for all motion of matter and radiation is compatible with Special Relativity (SR), given the formal equivalence of Lorentz Ether Theory (LET) and SR, the conventional opinion, following Einstein, is that the concept is nevertheless not needed. However, Geoffrey Builder argued in the 1950s that a UFR is not only compatible with SR, but provides the necessary and sufficient physical basis for the well-documented relativistic effects associated with motion. The question posed in the title will be discussed in the light of the work of Builder, Prokhovnik and others.