

How the Epicureans might have predicted Lorentz time dilation

Post by “jcblackmon” of December 15, 2025 at 10:05 AM

Hi, everyone. I've argued that if, as Epicurus held, in some frame of reference all the most fundamental particles of which all other things are composed move at the same speed (his doctrine of isotacheia, also *isotakheia*), and if that speed is c , then Lorentz time dilation follows as a matter of classical kinematics, or just geometry. In short, the Epicureans should have expected Rossi-Hall (1940) and other such results.

On the isotacheian model, there are no abstract or mysterious interpretations of the values of the Lorentz transformation (by which we calculate time dilation); each value has a concrete physical interpretation as a velocity vector magnitude. I believe this model may be empirically equivalent to our standard Einsteinian theory of relativity, but it is classical, algebraically simple, and arguably more intuitive. It does not explicitly rely on (nor does it deny) the invariance of the speed of light or on Maxwell's equations or on any empirical discoveries; it just follows from isotacheia and a simple theorem of kinematics.

Here is my article: https://www.researchgate.net/publication/39...f_Time_Dilation

Although the journal is dedicated to ancient philosophy, I requested and received a specialist in relativity as one of my anonymous referees.

I may post a simple version of my argument, if there is interest. Thank you.