

Why we should stop talking about the expansion of space

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A popular stand about the interpretation of cosmic expansion is the following: « [...] expansion redshift are produced by the expansion of space between bodies that are stationary in space. » [Harrison (2000)]. Most of us have been taught cosmology that way, and we naturally tend to replicate this message, notably in public outreach—think of the ubiquitous analogy of the inflating balloon. The same thing happens with gravitational waves, which are often referred to as « ripples in space-time », which stretch distances as they propagate. The concept of an « expanding space » is, however, in blatant contradiction with the fundamental principles of relativity. In this talk, I will argue that it is both unnecessary and dangerous for our intuitive understanding of the world. As such, we should abandon it.

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