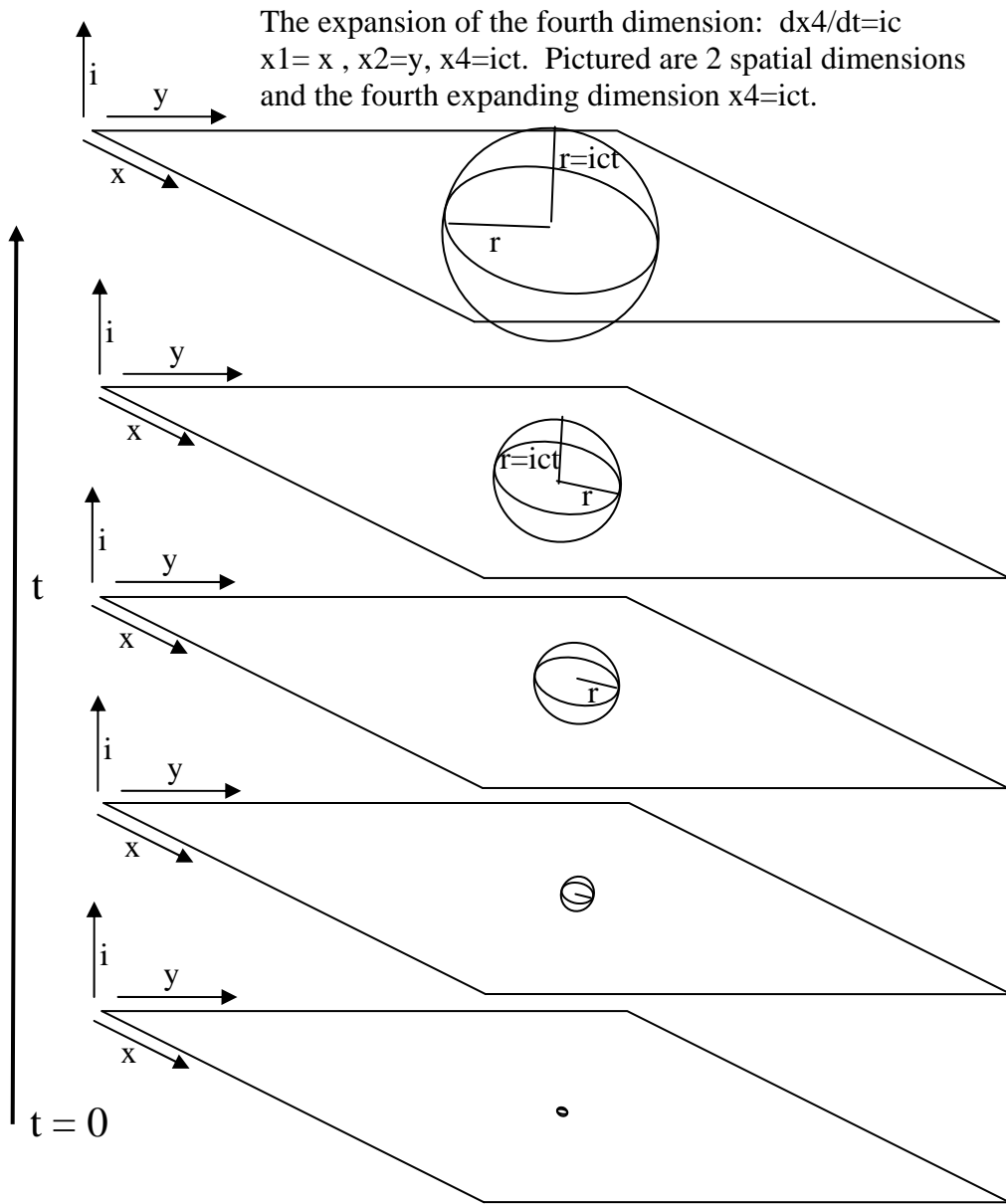


MDT PERVADES NATURE: IMAGINARY NUMBERS IMPLY PERPENDICULARITY

MDT DIAGRAMS: INSPIRED BY EINSTEIN'S $x_4 = ict$

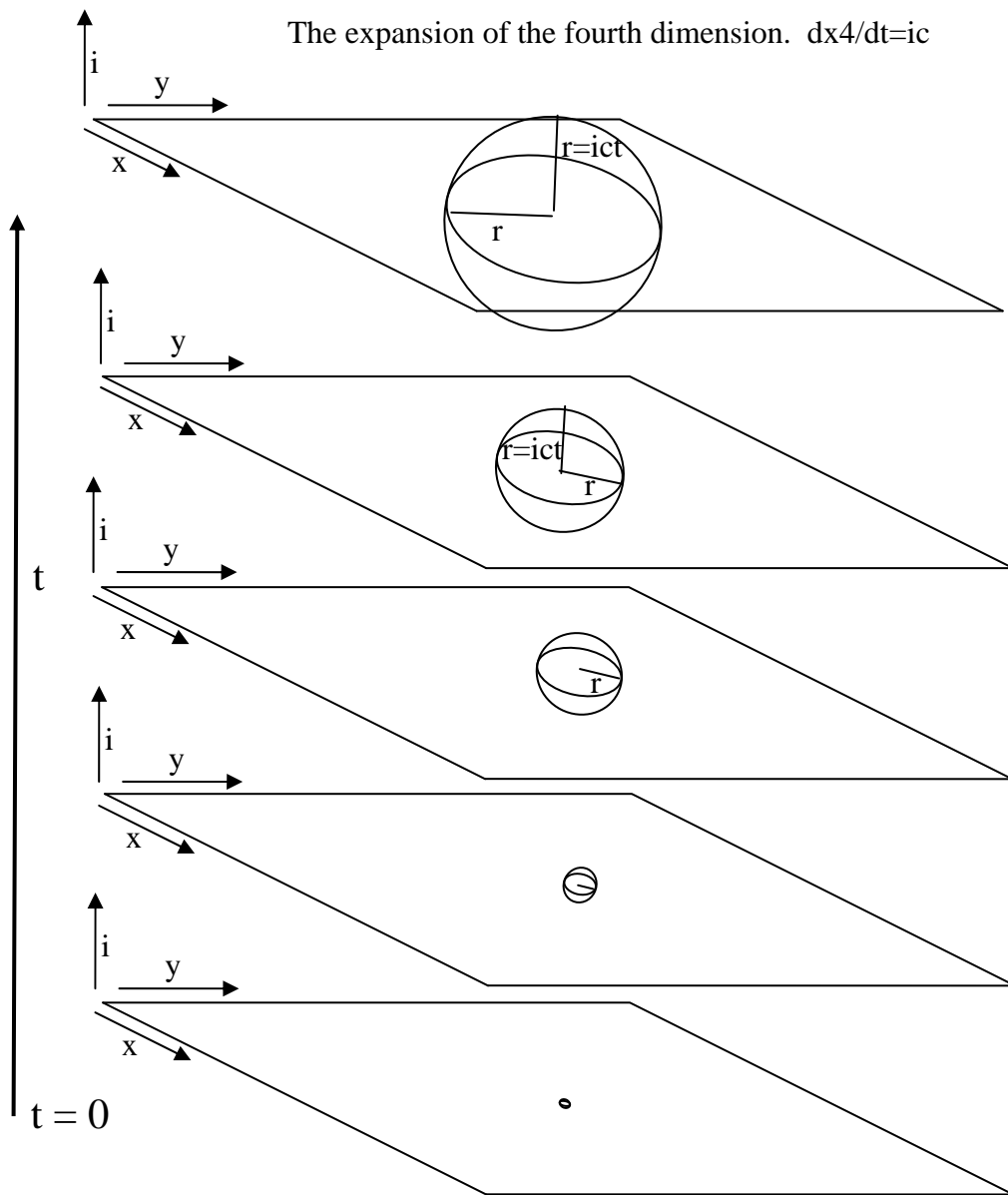


Consider a two-dimensional plane and a point expanding as a sphere in the three spatial dimensions. In the above figure, a point in the third expanding dimension appears as an expanding circle in the 2D plane, as the circle's radius expands at the rate of c , giving the 3D sphere a radius of $r = ict$, and the 2D circle in the x - y plane a radius of $r = ct$. Not only does this expansion of the sphere in 3D and circle in 2D define the velocity of light and make it independent of the velocity of the source (relativity), but the expansion also defines the propagation of the probabilistic wavefront that represents the photon's motion (quantum mechanics). Furthermore, the expanding surface of this circle

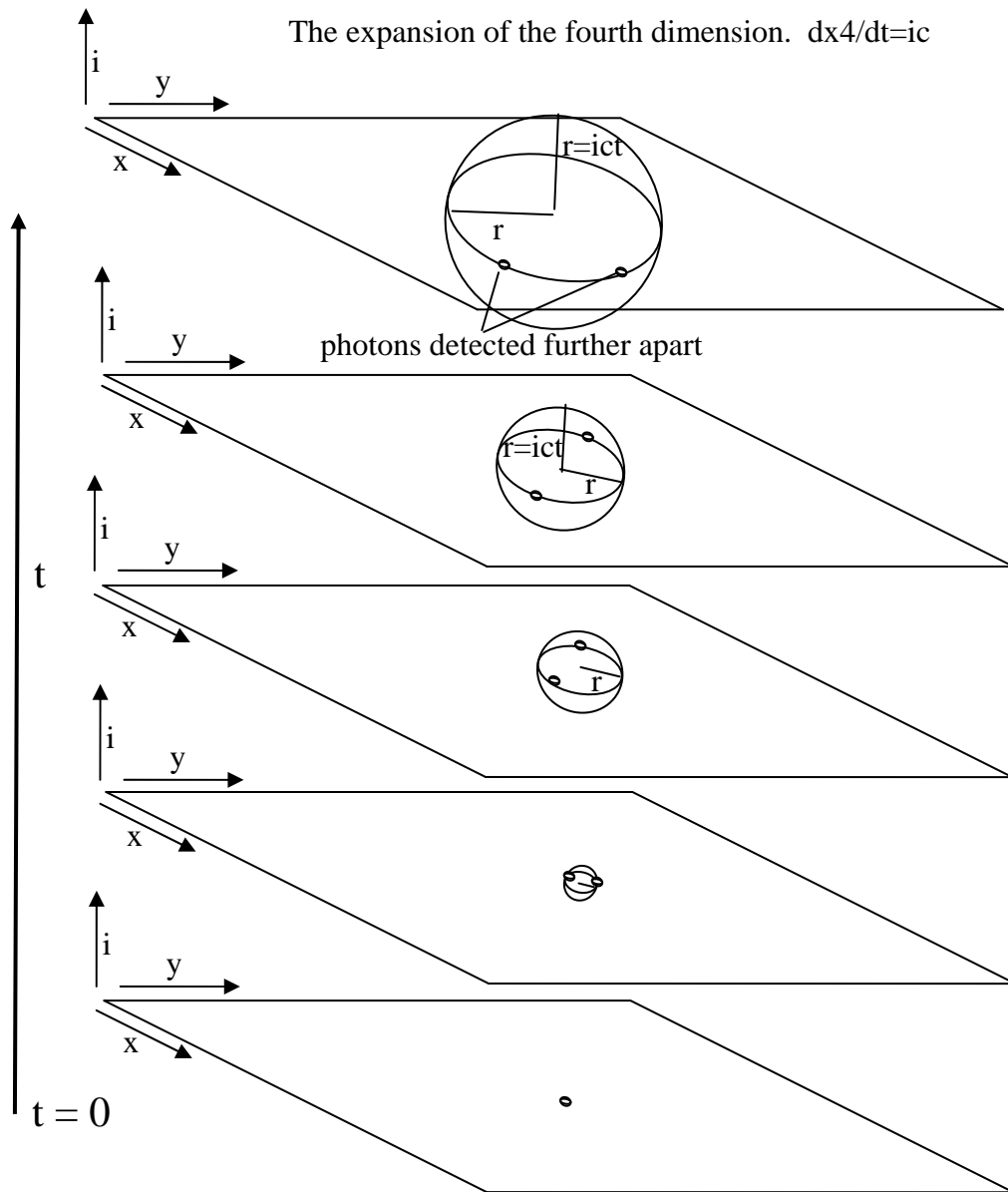
defines both a nonlocality (quantum mechanics) and a simultaneity (relativity). Two photons emitted from the origin at the same time will yet be entangled in an instantaneous fashion (quantum mechanics) no matter how far they travel apart, as the surface of the circle yet defines a single point in the expanding dimension—thus measuring one will instantaneously affect the other. Two photons emitted from the origin at the same time will yet remain at the same place in time, no matter how far they travel—neither photon will age (relativity). Both photons will remain in the exact same place in the expanding dimension. This is because the expanding fourth dimension is inherently nonlocal, as it expands relative to the three spatial dimensions. The expanding dimension redefines our notion of locality, dispersing it in a nonlocal manner.

So it is that a point of the fourth expanding dimension manifests itself as a 3D expanding sphere in our physical reality; and the above figure may be extrapolated into our world of three spatial dimensions, and a fourth expanding dimension. A point in the fourth expanding dimension evolves into a sphere in the three spatial dimensions, as the sphere's radius expands at the rate of c , giving the sphere a radius of $r=ct$. Again, a photon surfs this expanding sphere, which remains in the same place in the fourth dimension. Hence both qm's nonlocality and relativity's ageless photon. Finally both qm and relativity can be seen to come from the same place— $dx_4/dt=ic$.

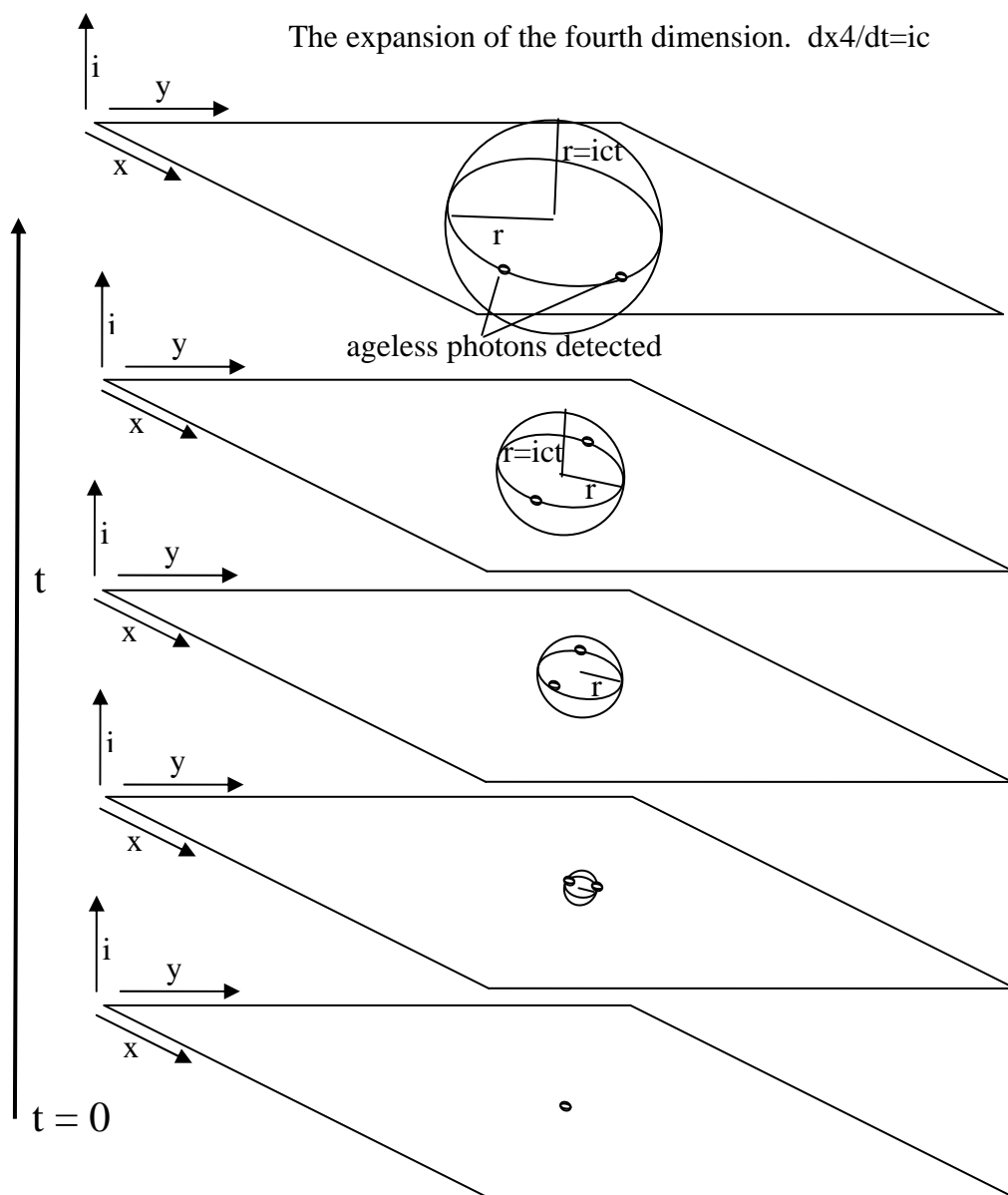
MDT'S PHYSICAL MECHANISM FOR NONLOCALITY: Every point on the spherically-symmetric expanding wavefront yet implies a locality in the fourth expanding dimension. As photons are but matter surfing the fourth expanding dimension, they appear as energy moving at c , while retaining a locality in the fourth expanding dimension.

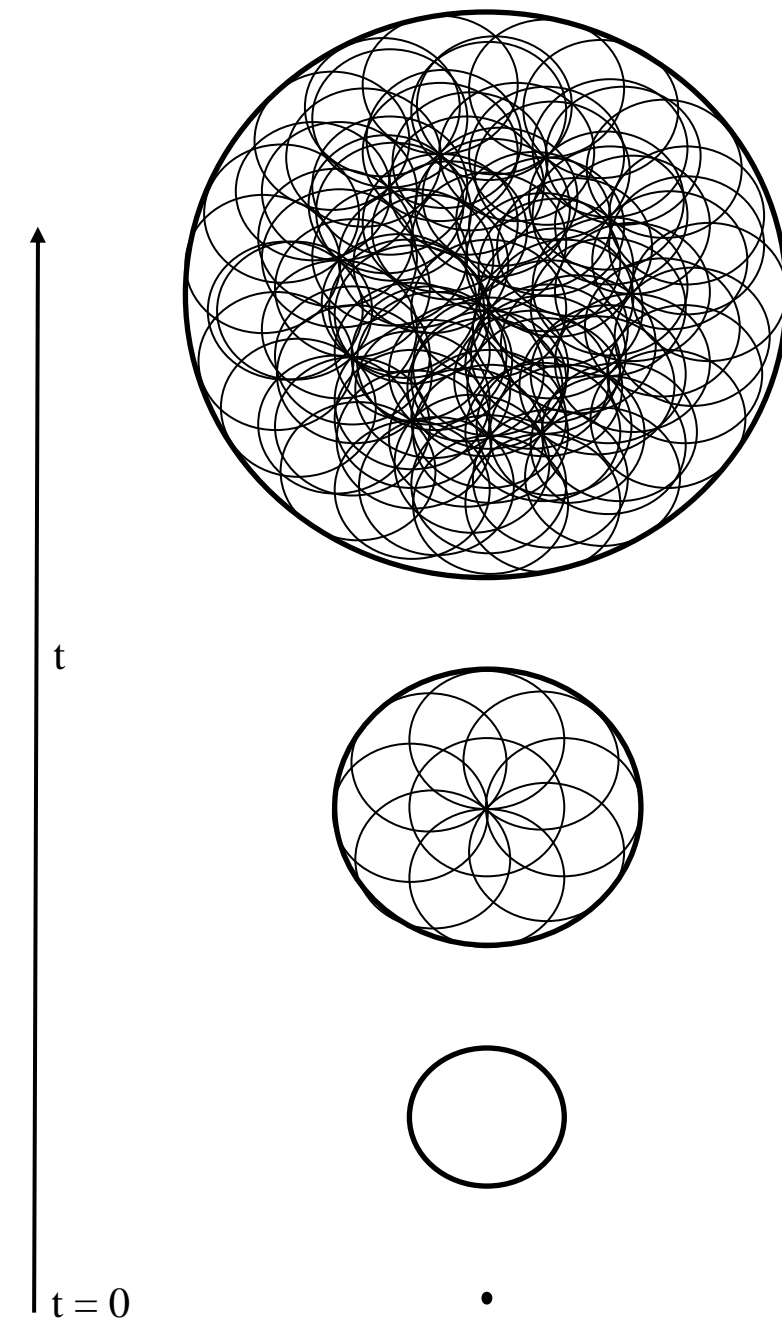


MDT'S PHYSICAL MECHANISM FOR TIME'S RADIATIVE ARROW: As photons remain in the same place in the fourth expanding dimension, radiation appears as expanding probabilistic spherically-symmetric wavefronts, but not shrinking spherically-symmetric wavefronts.



MDT'S PHYSICAL MECHANISM FOR THE AGELESS PHOTON: As photons remain in the same place in the fourth expanding dimension, they travel at the rate of c while yet remaining in the same place in the fourth dimension. This also explains qm's nonlocality—the expansion of the fourth dimension *defines* nonlocality, while perfectly describing the propagation of the photon, and elaborating on its ageless, timeless, nonlocal, wavelike qualities.





The expansion of the fourth dimension: $dx^4/dt=ic$

MDT'S PHYSICAL MECHANISM FOR HUYGENS' PRINCIPLE & HEISENBERG'S UNCERTAINTY PRINCIPLE: As a point expands, it defines a

sphere. Every point on that sphere in turn expands, giving rise to Huygens' Principle and the Heisenberg Uncertainty Principle, (which both rest upon the fundamental wavelike character of space-time); and so it is that a brand new locality is defined, as every point on the surface of the greater sphere is yet at the exact same place in the expanding dimension. All expanding locality requires a common origin of locality; and as the expansion of the dimension propagates at c , the expansion of locality propagates at c . The spherically-symmetric expanding wave-front of the fourth dimension expands with a wavelength of the Planck Length at the rate of c ; setting both h (Planck's constant) and c (the velocity of light). All wavelike behavior; and all limitations in certainty arise because of the wave-nature of the fourth expanding dimension.