Did the Big Bang fizzle?

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The cosmological redshift may be explainable with a gravitational version of the Aharonov-Bohm effect.

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I. INTRODUCTION

Since the velocity of a receding particle cannot exceed c, it had to be at least half way to where it is now when it emitted the signal. It could be more than twice as far away if it is accelerating away from us. The most distant objects visible to us are more than 20 billion light years away now, if they still exist. The age of the universe could not be less than that. On the other hand, no matter how far away a particle was when it emitted a signal, it could be nearby now. The behavior of approaching and receding particles is very different when the velocity is high. Models based on extrapolations from low velocity calculations are not necessarily usable. It is doubtful that we can see more than about half way back to the moment of creation.

In 3+1 space, we are always free to choose a coordinate system that follows us as we move about in space and time. In 4-space, we are not alone. Coordinate systems are not portable if there is, or could be, another observer in the problem. There can be one observer and many particles, or one particle and many observers. When there is one particle and many observers, each observer is not free to choose their own coordinate system.

If a particle is at rest inside a moving mass shell, does the shell tend to drag the particle along with it? We should know, but we don't. The Coriolis term of the Lense-Thirring effect[4] is similar, but that solution is not directly applicable. We cannot know whether the particle or the shell is moving, so there would be a retarding force when the particle is moving within a stationary mass shell.

Consequently, for a photon traversing the cosmos, it would be uphill all the way.

The interior Lense-Thirring effect is analogous to a shear term. The derivatives of a constant acceleration vector inside a moving mass shell would be zero.

The symmetries of gravitational and electrical solutions are as different as the symmetries of space and time, but there appears to be an electrical dual of the dragging force that is developed in the last section of the paper in Refs. 1-3. Unlike the gravitational solution, the electrical solution is subject to laboratory evaluation.

This paper is archived at `vixra.org/abs/1801.0124` The home page is `s-4.com` These relationships will be developed further in future papers.

[1]G. Osborn, `http://s-4.com/ab`
[2]G. Osborn, `http://vixra.org/abs/1707.0344`
[3]G. Osborn, `https://figshare.com/articles/An_approximate_non-quantum_calculation_of_the_Aharonov-Bohm_effect/5477056`
[4] `https://en.wikipedia.org/wiki/Lense%E2%80%93Thirring_precession`
(The copy-and-paste method may be required to access multiple line URLs. In some cases is is always required.)

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