

# ZULF'S FEBRUARY 15 2022 1:50 PM RETURN TO HOW ELECTROMAGNETISM IS NOT A $U(1)$ GAUGE THEORY

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I want to return to an older idea I have from the summer of 2008, which is that the four-sphere is verifiable in various ways as the fundamental geometry of absolute space and that the discovery of the  $U(1)$  gauge invariance by Hermann Weyl and Fritz London is a mathematical feature of Maxwell equations on  $\mathbf{R}^3$  that is not actually a feature of *Nature* at all.

I will retrace the geometric intuition that led me to challenge  $U(1)$  gauge invariance of electromagnetism in Nature. It is that in four-sphere theory at a given moment in time  $t \in \mathbf{R}$ , the physical universe is embedded in absolute space

$$T : M(t) \rightarrow S^4(R)$$

Now we consider at any point  $x \in M(t)$  the basis vectors  $e_0, e_1, e_2, e_3$  of  $T_x S^4(R)$  where  $e_1, e_2, e_3$  span  $T_x M(t)$  and  $e_0$  is orthogonal to  $T_x M(t)$ . Now geodesics of  $S^4(R)$  are great circles.

You see when I examine this geometry, it is natural for me to suspect that all these theories of  $U(1)$  gauge theories are wrong, and there is a physical large great circle of radius  $R = 3075.69 Mpc$  in the direction orthogonal to the physical universe  $M(t)$ . This has a mild similarity to the total space of a  $U(1)$  principal bundle, since there is an orthogonal 'fiber' over every point in  $M(t)$ . But obviously, there is no independence of fibers from different points  $x \neq y$  for  $x, y \in M(t)$ . The circular fibers must intersect. And this is the geometry that we wish to consider primary and *not* the various ideas of  $U(1)$  gauge invariance which all pretend that there is an invariance in electromagnetism by various 'phase shifts'.

This is absolutely crucial to understanding Nature, as  *$U(1)$  gauge invariance is seriously misguided about how electromagnetism actually works in Nature.*

We need to build up an understanding of all concepts of electromagnetism in Nature based around the four-sphere geometry and abandon the idea that  $U(1)$  gauge invariance is true in Nature. And that will produce the correct theory of Nature.

## 1. ZULF SHOWS A BIT OF SCHOLARLY INTEREST IN HISTORY

I will be quite frank and emphasize that the main conviction I am expressing is that  $U(1)$  gauge invariance of electromagnetism is not a feature of *Nature*. Obviously experiments will verify my assertion thoroughly, and it is possible that the Bohm-Aharonov reality of electromagnetic potential might be interpreted as a refutation of  $U(1)$  gauge invariance of electromagnetic phenomena in *Nature*.

Having given this preamble, let me exhibit some semblance of knowledge of history of established physics, to put those readers at ease who might be worried

that it is out of sheer ignorance that I make my proclamation that  $U(1)$  gauge invariance is not a feature of Nature.

A scholarly article for the history of gauge theory [1]. The entire concept of  $U(1)$  gauge invariance for electromagnetism arises from Hermann Weyl's efforts from 1918 on a unified field theory combining gravity and electromagnetic field. Fritz London has a paper from 1927. I want to point out that my four-sphere theory rests of totally removing gravity altogether from Nature by a simple replication of Earth-Sun gravity by Van der Waals forces between electrically neutral atoms and molecules in statistical aggregate. I have strong empirical values that give us measured gravitational force between Earth and Sun. Hermann Weyl's ideas revolved around discomfort with Riemannian geometry for spacetime. I am extremely comfortable with Riemann's geometry for spacetime. My geometry for Nature is simply

$$S^4(R) \times \mathbf{R}.$$

The metric of absolute space is the ordinary round metric, nothing exotic. Hermann Weyl's gauge invariance idea for electromagnetism is refuted with Bohm-Aharonov reality of electromagnetic potential.

Let me show you why. You see gauge transformations *literally change the electromagnetic potential*. We have

$$A \mapsto A + \nabla\chi$$

when the gauge transformation is  $e^{i\chi}$ . Hermann Weyl died in 1955, but reality of electromagnetic potential was discovered by David Bohm and Yakir Aharonov in 1959. Their discovery *ensured that  $U(1)$  gauge invariance cannot be true about Nature*. But physicists were totally confused from 1955-2022, today, and did not notice that they already had evidence to reject  $U(1)$  gauge invariance. So all the physics textbooks that employed  $U(1)$  gauge invariance for electromagnetism since 1955 were just wilfully deluded. That's just how Science works according to Paul Feyerabend's *Against Method*. It's total anarchy. People theorise things, and then don't pay any attention to experimental evidence against their theory, then write complicated tomes on their wishful fantasies, bamboozle each other, and then get tenure at good universities while Stanford University is circumspect about offering immediate tenure to Zulfikar Moinuddin Ahmed. What's new here?

## 2. THOMAS KUHN'S PARADIGM THEORY IN ACTION

I better point out that there are stacks of physics books and even larger stacks, filling entire libraries, where repeatedly  $U(1)$  gauge invariance of electromagnetism in Nature is promoted. It's not an individual decision. This is because Quantum Electrodynamics and other established physics theories from the 1900-1930 *Paradigm* accepted it, and the Bohm-Aharonov reality of electromagnetic potential was not a strong enough *anomaly* to really touch the torrential flood and deluge of the paradigm.

I am wise, and do not want to be the stampeded by angry physicists and so I keep away from accusing any *particular* physicist of error. I use subtle strategies I learned during my time as a revolutionary socialist, political strategies of how to avoid being beat to a pulp by personal insult to some people who are six foot five and full of muscles or mobs of angry physicists.

### 3. CUSTOMARY RUMINATION ON BILL GATES THE CHARLATAN'S INTELLECTUAL LEVEL

Bill Gates is much worse in his actual morals and evil than any Nazi butcher of Auschwitz, and even Mumm-Ra The Everlasting cannot match his Evil. But on intellectual level, besides considering the white high school dropouts from his native boondocks hicktown in frontier nowhere-ville who can barely achieve a pizza delivery without botching it, the *superior white boys*, Bill Gates intellectual level and circle includes *Alvin the Chipmunk*.



The one in the middle bears a frightening resemblance to Billy The White Supremacist Gates.

#### REFERENCES

- [1] Lochlainn O’Raifeartaigh and Norman Straumann, Gauge theory: Historical origins and some modern developments, Rev. Modern Physics, 72, 2000, pp. 1–23