

The Physics Web Page of DT Froedge

This is the personal physics web page of DT Froedge, the purpose of which is to present the personal views and ideas in theoretical physics, developed by the author over a number of years. The ideas presented are not the conventional view but alternative approaches to fundamental problems in physics.

On finishing coursework for a PhD in physics in 1969 with a focus on plasma physics, I had arrived at the decision that I wasn't all that interested in experimental physics, nor defending a theoretical-experimental dissertation on imploding shock waves that had become uninteresting; I decided to do something else.

I had to work to survive, but the engineering skills from physics served me well, and I have managed to do that. Physics became the avocation, and a lifetime pursuit, primarily trying to understand for myself how the universe worked, and then over the years developing my own thoughts.

It took many years to develop the sufficient mathematical skills to venture into some of the problems I wanted to understand. My personal mathematical skills are still not terribly advanced, but having a fair understanding of tensor analysis, and with the help of Cartan's work in the 70's, Hestenes' work in the 80's, and lately Doran's, on Geometrical Algebra, there is enough to get by. The assistance of some very skilled particle physicists, that would not want to be identified with my work, has been extremely helpful in finding conceptual errors and understanding current theory.

I've tried to focus on the things that seemed wrong, and things that could make a difference. Early on lots of time was spent on the logic of QM, only to conclude that it is not logical, only mathematical. Four thousand years of logic has certainly taught us that logic works, so it is more likely we're missing something, but the double

slit, Bells inequality, and action at a distance, make no logical sense. Unraveling that will have to wait for another Newton, I gave up.

There are two main theories in current physics that in my view are off the rails, and I have worked on. One being too narrow, the other being an approximation.

Quantum Mechanics:

The focus of QM and QFT is entirely on the probabilistic interpretation of the linear (Dirac), factors, of the Klein-Gordon equation. From my perspective, if there is one equation which physics can depend on as being the true descriptor of physical phenomena it is the KG expression.

Dirac's recognizing the necessity for and making the factorization of this equation ranks with Newton's $F=ma$ in importance to the progress of physics. That having been said, the range of the KG expression as a descriptor of physical phenomena in the universe should not be ignored. It has real amplitude as well as phase solutions, and likely the defining relations between particle mass ratios. The probability solutions to the linear form which is the aggregate of the QFT effects, are important, but are not the only phenomena defined by this expression. Presuming that probability solutions are the only proper solutions to the KG is a mistake.

It is at its base a point function defining the relativistically differential changes in the electromagnetic gauge. Though generally looked on as a particle defining equation, the entire universe is likely a solution of this equation, and particles should be looked on as energy levels in that function. There are two special points, in the universe: the initial point, and the current point, which are clearly distinguishable, and exploitable for defining solution endpoints.

Defining the universe as a sum of its parts is never going to allow an understanding of how the universe works. The concepts of inflation, expansion, acceleration, the speed of light, Mach's principle, etc. can be adjusted to fit the measurements, but understanding it all requires a global solution and I am convinced it will be a solution to this equation.

Gravitation:

My view is that defining gravitation in Riemannian curved space, though yielding excellent results, is only an approximation, and the limitations have been papered over with increasingly sophisticated mathematical gymnastics.

It's not that another theory will make any practical difference, but it is clear, that after a hundred years and Herculean efforts by the finest minds, **there is no possible way to combine GR with QM**. Something is wrong and staying with GR as a fundamental theory will never allow gravitation and QM to be reconciled.

After many iterations, I have come to the conclusion that Gravitation is nothing more than gradient in the velocity of light. This concept not only allows a locally conservative energy theorem, compatible with E&M, but opens a path for Quantum Field Theory to provide the mechanism for such a gradient and thus create a unified theory.

Physics

Gravitation

- Gravitational Theory with Local Conservation of Energy
- The Velocity of Light in a Locally Conserved Gravitational Field
- Gravitation is a Gradient in the Velocity of Light
- Gravitation is a Gradient in the Velocity of Light APS 1/28/17
- The Concept of Mass as Interfering Photons
- QFT Origin of Gravitation

Black holes

- Black Hole vs. Variable Rest Mass Neutron Star
- Image Comparisons of Black Hole vs. Neutron Dark Star by Ray Tracing
- Image Comparisons -----Presentation APS April 2015 Baltimore

Gravitational Radiation

- An Alternative to Gravitational Waves
- Ligo Gravitational waves: Ripples in Spacetime or Electromagnetic
- LIGO Observations APS April 16 Meeting: Gravitational Wave Detection GW150914 (4-25-16)

Particle Physics

- Particle Solution to the Klein-Gordon-Dirac Equation in the Context of a Big Bang Universe
 - Particle Mass Ratios
- Interesting**
- New Twist on Double Slit
 - The Gravitational Constant may not be Constant: Correlation of Gravitational Constant Measurements with Ambient Gravitation

Although I have written the pages here, and presented work at various conferences, I have long given up expecting anyone to give the work much credence. Most of those having the skill to offer critique have too many activities to offer time on the musings of a crank. Only if there is an accurate prediction of a spectacular contrast with current theory will any of the papers find their way into the mainstream of physics.

The principles and results developed are presented with as much clarity and mathematical skill, as I have at my disposal. They are put here for the purpose of formalizing my thoughts on some of the fundamental problems, and offering my view. Whether there is merit or not will be left for time to judge.

<http://www.arxdtf.org/>

I may be contacted at:

phys-dtfroedge@glasgow-ky.com

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