

Dear Reader

The proliferation of gauges, free parameters, counterterms in modern physics has given it the appearance of the federal tax code with its many rules and exceptions but in the end providing us with no real understanding. We prove here that the reason we are in this quagmire is that the *covariance* of Dirac's original (circa 1928) equation was not *general* enough so that in the meantime we had to add all this extra baggage to do what we could to correct for that mistake.

Thus we require a *generally covariant* generalization of the Dirac equation, that being our new **pde** (**P**artial **D**ifferential Equation).

- 1) The APS letter introduces this new **pde**.
- 2) The March Paper shows why that new **pde** fixes the above problem.
- 3) The book starts with a postulate of a 2D coordinate point (object) and thereby then derives the $2D(\text{object})+2D(\text{observer})=4D$ degrees of freedom **pde**. This procedure is analogous to adding the observer to obtain the collapse of the wavefunction in the Copenhagen interpretation of quantum mechanics. Thus **physics is the process of observing 2D** with our new 4D pde the result. Most of the rest of the book gives solutions to that new **pde** for $r>r_H$, $r=r_H$ and $r<r_H$ to get a very large amount of physics with some going beyond the standard model. The precision of the old QED is also maintained. Hopefully the reader will learn from these three documents how that simple math mistake has stopped the progress of theoretical physics dead in its tracks, and how this new **pde** provides the remedy. Please help make this new **pde** and its applications available to others so that theoretical physics can move forward again.