Abstract Submitted
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New Generally Covariant Generalization of the Dirac Equation Not Requiring Gauges DAVID MAKER, mda — We introduce a new pde ($\Sigma_\mu \sqrt{\kappa_{\mu\mu}}\gamma_\mu \partial\psi/\partial x_\mu - \omega\psi = 0$) with spherically symmetric diagonalized $\kappa_{00} = 1 - r_H = 1/\kappa_{rr}$ giving it general covariance. If $r_H = 2e^2/m_e c^2$ this new pde reduces to the standard Dirac equation as $r \to \infty$. Next we solve this equation directly using separation of variables (e.g., 2P, 2S, 1S terms). Note metric time component $\kappa_{oo}=0$ at $r=r_H$ and so clocks slow down with *baryon stability* the result. Note also that near r_H the $2P_{3/2}$ state for this new Dirac equation gives a azimuthal trifolium, 3 lobe shape; so this **ONE** charge*e* (so don't need *color* to guarantee this) spends 1/3 of its time in each lobe (*fractionally charged* lobes), the lobe structure is locked into the center of mass (*asymptotic freedom*), there are *six* 2P states (corresponding to the 6 flavors); the P wave scattering gives the *jets*, all these properties together constituting the *main properties of quarks!* without invoking the many free parameters, gauge conditions of QCD. Also the $2S_{1/2}$ is the *tauon* and the $1S_{1/2}$ is the *muon* here. The S matrix of this new pde gives the *W and Z as resonances and does not require renormalization counterterms or free parameters.* Thus we get nuclear, weak and E&M phenomenology as *one* step solutions of this new pde, not requiring the standard method's pathology of adhoc assumptions such as gauges and counterterms, 19 free parameters (you can vary any way you want) that have confused, blocked the progress of theoretical physics for the past 30 years.

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