

A NEW APPROACH TO QUANTUM GRAVITY

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Nassim Hamein Director of Research of the [Hawaii Institute of Unified Physics](#) just completed publishing his latest paper entitled “Quantum Gravity and the Holographic Mass” in the peer review journal [Physical Review and Research International](#) at [ScienceDomain International](#). In this new manuscript, Hamein takes a new approach to quantum gravity and the source of mass. Utilizing a generalized holographic principle, he “pixelates” the horizon and interior of black holes with Planck spherical units (PSU) and generates an exact solution to Einstein's field equation (the Schwarzschild solution) by simple geometric and algebraic reduction. What makes Hamein’s approach unique is that his gravitational solution is generated from discrete spacetime Planck quantities instead of using a smooth continuum as did Einstein. He then applies the same approach to the quantum scale of hadrons and obtains a value for the rest mass of the proton within $0.069 \times 10^{-24} \text{ gm}$ of the CODATA value and $0.0012 \times 10^{-24} \text{ gm}$ deviation when the 2010 muonic charge radius of the proton measurement is utilized. He then predicts what the exact radius of the proton should be by utilizing the CODATA rest mass value, and places the charge radius at $r_p = 0.841236 \times 10^{-13} \text{ cm}$, less than one standard deviation from the muonic charge radius measurement of 2010 or within $0.000604 \times 10^{-13} \text{ cm}$.

Chris Almida, Executive Director of the Resonance Project Foundation says “*the incredible part is that it's exactly correct... not an approximation and that he took this new quantized solution to gravity, applied it to the quantum world to predict the exact charge radius of a proton.*” On January 25th 2013, the Paul Scherrer Institute proton accelerator in Switzerland released a new muonic measurement for the size of the proton, less than a month after Hamein sent the paper to the library of congress. Chris continues to say, “*Nassim's prediction was confirmed and is exactly right (within the standard deviation of the experiment) where the Standard Model theory is off by a significant amount.*” The experimental result of the 2013 measurement is now even closer to the predicted value, within $0.000366 \times 10^{-13} \text{ cm}$.

Hamein goes on to derive the energy, angular frequency, and period for such a hadronic system utilizing his generalized holographic approach and determines the gravitational potential, with consideration of special relativity and mass dilation, to generate a quantum gravitational confining force. He finds the force range to be closely correlated with the Yukawa potential, typically utilized to illustrate the exponential drop-off of the strong interaction, in his case however generated from classical considerations and producing an analytical solution to confinement. Zero free parameters or hidden variables are utilized throughout his approach.

Hamein’s algebraic and geometric solution may help fulfill one of Einstein’s dreams of finding a simple algebraic unifying gravitational theory best expressed in his statement from his lecture series on the Meaning of Relativity, “*One can give good reasons why reality cannot at all be represented by a continuous field. From the quantum phenomena it appears to follow with certainty that a finite system of finite energy can be completely*

described by a finite set of numbers (quantum numbers). This does not seem to be in accordance with a continuum theory and must lead to an attempt to find a purely algebraic theory for the representation of reality.”

Additional media and contact information can be found by visiting the Hawaii Institute for Unified Physics at www.hiup.org, or by directing email inquiries to media@hiup.org
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