Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Unifying the Geometry of General Relativity with the Virtual Particle Nature of Quantum Theory JOHN LAUBENSTEIN, IWPD Research Center — General Relativity (GR) and Quantum Electro-Dynamics (QED) utilize different underlying assumptions regarding the nature of vacuum and space-time. GR requires the actual geometry of space-time to change in the presence of mass resulting in gravitation. QED operates within flat space-time and propagates forces through the exchange of virtual photons. Efforts to unify these theories are – despite their mathematical elegance – complex, cumbersome and incomplete. The inability to achieve unification may suggest a need to re-think basic conceptual models. The IWPD Research Center has found evidence suggesting that time – as a unique degree of freedom – may be illusionary. Our research suggests that time may be "embedded" within a spatial dimension through a geometric manipulation of the light cone in Minkowski space-time. This interpretation of space-time provides predictions that are experimentally verifiable and suggests a conceptual path for the unification of GR and QED.

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Date submitted: 06 Sep 2006 Electronic form version 1.4