Abstract Submitted for the APR21 Meeting of The American Physical Society

A Physical Origin for Quantum Entanglement and Probabilistic **Behaviors** KENNETH SCHATTEN<sup>1</sup>, ai-Solutions Inc — In Quantum Field Theory (QFT) free electrons consist of a bare core surrounded by a "dressing." The dressing consists of virtual particles, typically photons pulled from the vacuum during an electron's parturition. This dressing allows electrons to become unbound by inhibiting radiative energy losses (Bremsstrahlung) as they leave their bound state. As a byproduct, this imbues free electrons with a randomly oriented electromagnetic spin vector. We make the case that this provides a physical origin for QM's probabilistic and entanglement behaviors. Namely, these are associated by free electrons obtaining oriented spin vectors. We refer to this as a "random vector paradigm" (RVP). The RVP offers a possible explanation for Quantum Mechanics' random attributes. This identifies a physical source for QM's novel behaviors. Entanglement and probabilistic behaviors are tested by comparing Monte Carlo simulations with experimental findings, using Bohm's version (B-EPR) of the Einstein, Podolsky, Rosen (EPR) experiment. A Shimony computer simulation tracks Bell's B-EPR. experimental summary.

<sup>1</sup>I tried to submit this 1 or 2 days ago, but heard nothing... Plus I sent money by mistake to the March meething.. please use this.

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