1052-81-147

Roderich Tumulka* (tumulka@math.rutgers.edu), Department of Mathematics, Rutgers University, 110 Frelinghuysen Rd, Piscataway, NJ 08854. *Relativistic Realistic Quantum Theory:* On a Recent Model Reconciling Quantum Nonlocality and Relativity.

Realistic quantum theories are theories that describe an objective, microscopic reality that exists independently of observers and entail the same predictions for observations as orthodox quantum theory, at least within the accuracy of presently doable experiments. Non-relativistic realistic quantum theories, such as the Ghirardi-Rimini-Weber (GRW) collapse theory and Bohmian mechanics, have long been known, but the extension to the relativistic case presents a difficulty because of the quantum nonlocality discovered in 1964 by John Bell. In my talk I will discuss a fully relativistic version of the GRW theory for n entangled particles that I have developed recently, and that resolves this difficulty. (Received August 25, 2009)