Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Counterfactual Measurements and the Quantum Zeno Effect ONOFRIO RUSSO, New Jersey Institute of Technology, LIANG JIANG, Yale University — The apparent paradoxical paradigm of an interaction free measurement (counterfactual measurement) of the presence of a classical or quantum object without any scattering or absorption of photons is considered in light of the quantum Zeno effect. From one perspective, the counterfactual measurement in principle is consistent with minimizing the interaction between the object and the photon. However, the quantum Zeno effect mandates that repeated interactions with photons (although weakly coupled) are required and necessary to inhibit the coherent evolution of the state of the system. We consider and appraise these seemingly conflicting concepts.

Liang Jiang
Yale University

Date submitted: 15 Nov 2013 Electronic form version 1.4