



UNIVERSITY OF CRETE
DEPARTMENT OF PHYSICS



CCN

CRETE CENTER FOR
QUANTUM COMPLEXITY
AND NANOTECHNOLOGY

ΓΕΝΙΚΟ ΣΕΜΙΝΑΡΙΟ ΤΜΗΜΑΤΟΣ ΦΥΣΙΚΗΣ

PHYSICS COLLOQUIUM

Thursday, 10 December 2015

17:00 -18:00

3rd Floor Seminar Room

“Counterfactual communication”

Prof. Lev Vaidman

Department of Physics, Tel Aviv University, Israel

Abstract

Counterfactual communication is a communication without particles in the transmission channel. Since there are no particles to observe, it is apparently cryptographically secure because Eve has nothing to eavesdrop on. However, the issue is highly controversial. I will describe: interaction-free measurements, direct counterfactual communication protocols, an experiment in which I asked photons where they have been, and the two-state vector formalism. Finally, I will argue that counterfactual communication can be possible only for one bit value.