

CU Physics Department Colloquium

Monday, February 11, 2008 4:10 PM 428 Pupin Hall

Marlan Scully

Princeton University and Texas A&M



"TIME AND THE QUANTUM:

ERASING THE PAST AND IMPACTING THE FUTURE"

As Aharonov and Scully explain: The quantum eraser effect of Scully and Drühl dramatically underscores the difference between our classical conceptions of time and how quantum processes can unfold in time. Such eyebrow-raising features of time in quantum mechanics have been labeled "the fallacy of delayed choice and quantum eraser" on the one hand and described "as one of the most intriguing effects in quantum mechanics" on the other. In the present paper, we discuss how the availability or erasure of information generated in the past can affect how we interpret data in the present. The quantum eraser concept has been studied and extended in many different experiments and scenarios, for example, the entanglement quantum eraser, the kaon quantum eraser, and the use of quantum eraser entanglement to improve microscopic resolution.

HOSTED BY BORIS ALTSHULER

