

Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Small Classical Phase Space Structures and Pulsed Quantum Evolution: the Stepwise Ionization of the Excited Hydrogen Atom in a Microwave Pulse LUCA PEROTTI, Texas Southern University — Microwave ionization probability of a highly excited almost monodimensional hydrogen atom subjected to a microwave pulse sometimes grows in steps when the peak electric field of the pulse is increased. Classical pulsed simulations display the same steps as the laboratory experiments. These classical steps have been traced to phase-space metamorphoses. Quantum numerical calculations again exhibit the same ionization steps. I have shown that the time-sequence of two level interactions, responsible for the observed steps in the quantum picture, is strictly related to the classical phase space structures generated by the above mentioned metamorphoses.

Luca Perotti
Texas Southern University

Date submitted: 21 Jan 2010

Electronic form version 1.4