

Abstract Submitted
for the APR09 Meeting of
The American Physical Society

Microwave Ionization of Hydrogen Atoms in the Presence of a Metal Wall¹ KODY WILSON², SHAYNE JOHNSTON, Oklahoma School of Science and Mathematics — Computer simulations of hydrogen ionization were conducted using a one-dimensional classical model. A metal wall at varying distances was used in conjunction with varying strengths and frequencies of microwaves, and ionization probabilities were computed for a range of microwave parameters corresponding to experiments. It is clearly demonstrated that the presence of a metal wall can significantly lower the threshold for chaotic microwave ionization because of the effects of image charges in the wall. The results may be applicable to the sticking problem in muon-catalyzed fusion, e.g., a microwave ionization scheme in a sea of carbon nanotubes.

¹Work supported by Research Corporation

²Present address: United States Air Force Academy

Shayne Johnston
Oklahoma School of Science and Mathematics

Date submitted: 07 Jan 2009

Electronic form version 1.4