

GEC07-2007-000230

Abstract for an Invited Paper
for the GEC07 Meeting of
the American Physical Society

Why Would Anyone be Interested in Charged Particles Ionizing Atoms and Molecules?¹

DON MADISON, University of Missouri-Rolla

In this talk, a general description of Atomic, Molecular and Optical (AMO) collision physics will be given and the objectives of this type of research will be discussed. The primary purpose of the talk will be to demonstrate how the general objectives of AMO research can be achieved using the technique of charged particle impact ionization of atoms and molecules. Several examples will be given showing how this technique can be used to yield different types of information about atoms/molecules and their environment. It will be demonstrated that, through a proper choice of dynamics, the method can be used to directly measure quantum mechanical wavefunctions, to investigate the details of collision dynamics or to directly examine the consequences of the Pauli principle.

¹Work supported by NSF grant PHY-0456528