Abstract Submitted
for the DAMOP11 Meeting of
The American Physical Society

**Highly Charged Ion-induced fragmentation of water in all its forms** L. ADOUI, R. MAISONNY, S. LEGENDRE, M. CAPRON, J.Y. CHESNEL, A. DOMARACKA, B. MANIL, A. MERY, J. RANGAMA, J.C. POULLY, P. ROUSSEAU, B.A. HUBER, B. GERVAIS, E. GIGLIO, University of Caen / CIMAP / CNRS (France), M.F. POLITIS, M.A. HERVE DU PENHOAT, M.P. GAIGEOT, LAMBE Evry (France), P. LOPEZ-TARIFA, M. ALCAMI, F. MARTIN, Universidad Autonoma de Madrid (Spain) — Understanding of the molecular bond breakage selectivity, in order to control the bond cleavage, is one of the most exciting challenges in chemistry. The isotopomer of water HOD provides a three–atom prototype for studying such bond selectivity. A strong isotopic effect is evidenced in $HOD^{2+}$ ion fragmentation [1-2]. Moreover, the current interest in describing the biological radiation damage *at the molecular level* has triggered the investigation of dissociation of water molecules in highly ionizing collisions. In order to bridge the gap between molecules and liquid medium, we investigate the stability of water clusters as they have been suggested to participate in many chemical and physical processes [3]. A strong evolution from a partial dissociation to a full explosion of the cluster has been evidenced when the charge state of low energy ions is increased [4]. Perspectives will also be discussed. [1] J.Phys.B **38** (2005) L233; [2] J.Chem. Phys. **131** (2009) 024302; [3] J.Phys.B:. **42** (2009) 075101; [4] Phys Rev A (2011)

L. Adoui
University of Caen / CIMAP

Date submitted: 09 Feb 2011 Electronic form version 1.4