

Abstract Submitted
for the TSS10 Meeting of
The American Physical Society

Decay properties and photodetachment of the diatomic oxygen ion in a constant electric field JIN-WOOK JUNG, KYUNGSUN NA, LINDA REICHL, University of Texas at Austin — The effect of constant electric fields on the photodetachment of atomic ion has been studied experimentally and theoretically, but not much study has been done for the molecular ion. We study the effect of constant electric fields on the dynamics of molecular ion, O_2^- , in terms of a complex spectral decomposition of the energy Green's function for the open system. We describe the attractive interaction between the excess electron and the oxygen atoms by delta- function attractive potential wells and ignore the vibrational modes of the molecular ion to focus only on the effect of the new metastable states induced by the constant field. We study also the effect of the distance between the two delta-function potentials on the survival probability of the metastable state and discuss other applications of this model. (PRA 80, 012518(2009))

Jin-Wook Jung
University of Texas at Austin

Date submitted: 18 Feb 2010

Electronic form version 1.4