

Abstract Submitted
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Ly- α and H- α Optical Excitation Functions Resulting From Photodissociation of H₂ and D₂¹ T.J. GAY, E. LITAKER, J.R. MACHACEK, University of Nebraska, J.E. FURST, University of Newcastle, A.L.D. KILCOYNE, LBL, F. MARTIN, Universidad Autonoma de Madrid, K.W. MCLAUGHLIN, Loras College, J.L. SANZ-VICARIO, Universidad de Antioquia, Columbia — The production of Ly- α and H- α radiation following photodissociation of H₂ plays a key role in astrophysical plasmas associated with planetary aurorae and new-star formation. However, these very basic cross sections are not well known at this time, due to the poor agreement between the extant experimental data and the best available theory [1]. We will present recent data we have taken at the Lawrence Berkeley Laboratory Advanced Light Source (ALS) for these excitation functions with H₂, HD, and D₂ targets with incident photon energies between 24 and 70 eV. We will discuss possible systematic errors in the available data sets, including those due to incident photon spectral impurity, target contamination, cascading, background gas quenching, and other target-pressure-dependent effects. [1] See J.D.Bozek *et alii*, J.Phys.B **39**, 4871 (2006), and references therein.

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