

Abstract Submitted
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Pressing data needs for plasma-water interaction studies BILL GRAHAM, Queens University Belfast, UK, PETER BRUGGEMAN, University of Minnesota, USA, MARK KUSHNER, University of Michigan, USA, ZORAN PETROVIC, Institute of Physics, Belgrade, Serbia — It is clear that there is a growing scientific and technological interest in the physics and chemistry of plasmas created in contact with or in the presence of water vapor. This requires knowledge of the cross sections or rate coefficients for a vast number of collision processes and there are some invaluable reviews of the available data [1], however much more data is needed. Our personal views on the most pressing needs will be presented but here are our top 5. (1) An electron impact cross section set for OH that is as extensive as that available for H₂O. (2) The rates for heavy particle reactions with vibrationally excited H₂O(v) and OH(v) (3) The cross sections/rate coefficients for reactions involved in positive and negative ion water clustering. (4) The temperature dependence of three body reactions. (5) The reactions at and yields from the plasma-liquid water surface interface, and their rates. In addition we need to be able to determine rates for collisions and reactions in liquid water.

[1] Y. Itikawa and N. Mason, J. Phys. Chem Ref Data. 34, 1 (2005)

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