

Abstract Submitted  
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**Electron Excitation of Tin and Tin ion**<sup>1</sup> LALITA SHARMA, RAJESH SRIVASTAVA, Indian Institute of Technology Roorkee, Roorkee 247667 — There is a great requirement of accurate atomic data of tin and its ions to understand the properties of laser produced tin plasma, one of the sources of extreme ultraviolet (EUV) radiation. The constant efforts are being made under various international programs viz., International SEMATECH's EUV Source Program, Intel Lithography Roadmap etc., to improve the efficiency of the EUV sources which can meet the requirements of high volume manufacturing of commercial chips. For optimizing the efficiency of EUV device the plasma modeling should be accurate which in turn, would rely on the accuracy of atomic data used. In this connection we have undertaken the study of electron impact excitation of Sn and Sn<sup>+</sup>. Since the atomic number of Sn is 50, it is sufficiently heavy atom to manifest relativistic spin – orbit and exchange effects. Therefore, we have used a fully relativistic distorted wave (RDW) theory to calculate results for cross sections corresponding to various transitions as well as polarization of photons due to decay of excited states of Sn and Sn<sup>+</sup>. In our RDW theory wavefunctions for both, the target electrons and projectile electrons are obtained by solving Dirac equations. Thus the relativistic effects are incorporated in consistent manner to ensure the reliability of the cross section and polarization results which will be presented in detail at the conference.

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