

Abstract Submitted  
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**Photoionization of Ground and Excited States of Ti I**<sup>1</sup> SULTANA NAHAR, The Ohio State University — Photoionization of ground and many excited states ( $n \leq 10$ ) of Ti I is studied. Absorption lines of TiO are abundant in spectra of red supergiants (RSG). The amount of Ti I locked in TiO can have direct effect on the fluxes, spectral energy distributions and thus in determination of fundamental stellar parameters and abundances for RGS stars. Photoionization cross sections of Ti I are needed for the spectral analysis. Calculations have been carried out in the ab initio R-matrix method in LS coupling. A close coupling wave function of 36 LS states of the core has been used. Photoionization of the ground state  $3d^24s^2(^4F)$  shows low energy resonances indicating availability of  $Ti^+$  to combine with oxygen. Various other features, particularly of Seaton resonances due to photo-excitation of core, in the photoionization cross sections will be illustrated. Photoionization cross sections over 900 states will be presented.

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