

Abstract Submitted  
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**The Iron Project & Iron Opacity Project: Updates on Photoionization, Electron-Ion Recombination of Fe XVII and Ca XV** W. EISSNER, Stuttgart University, S. NAHAR, A. PRADHAN, H. HALA, L. ZHAO, Ohio State Univ - Columbus, J. BAILEY, Sandia National Lab — We have carried out converged close coupling (CCC) calculations for photoionization of Ne-like Fe XVII and demonstrate orders-of-magnitude enhancements in cross section due to successive core excitations. Convergence criteria are: (i) inclusion of sufficient number of residual ion Fe XVIII core states and (ii) high-resolution of myriad autoionizing resonances. We discuss verification of the conventional oscillator strength sum-rule in limited energy regions for bound-free plasma opacity. We will also report preliminary results from a larger R-matrix calculations of photoionization cross sections and electron-ion recombination rates of Ca XV where Rydberg series of resonances are included for core excitations to 28 states of n=2,3 complexes in contrast to previous 7 states of n=2 complex. The new results show existence of high-peak resonances of n=3 complex and enhanced background in high energy photoionization and a corresponding enhancement in the recombination in the high temperature region. Partial support: NSF, DOE, Ohio Supercomputer Center

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