

Abstract Submitted
for the APR12 Meeting of
The American Physical Society

Photoionization and Electron-Ion Recombination of Fe XVII for High Temperature Plasmas¹ SULTANA NAHAR², The Ohio State University — Earlier studies on electron-ion recombination of Fe XVII, $e + Fe XVIII \rightarrow Fe XVII$, concentrated on low temperature region. However, due to its higher abundance, recombination in the high temperature region such as one exists in solar convection zone is of great importance. Total and level-specific recombination cross sections and rates of Fe XVII are presented from the detailed study in the high temperature. The calculations were carried out using the unified method which incorporates both the radiative recombination (RR) and dielectronic recombination (DR) including the interference effects and provides self-consistent set of recombination rates and photoionization cross sections. The calculations included core excitations of levels n=2 and 3 complexes in contrast to earlier consideration of the n=2 levels only, and hence entails a large energy range and high temperature range. Resonances due to core excitations to n=3 levels are much more extensive and stronger than those to n=2 levels. These have introduced a broad and high FR peak at about 5×10^6 K.

¹Partially supported by DOE and NSF

²PDF presentation

Sultana Nahar
The Ohio State University

Date submitted: 02 Feb 2012

Electronic form version 1.4