

Abstract Submitted  
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**The Iron Project and the Rmax Project: Photoionization, Electron-Ion Recombination and Oscillator Strengths of Fe Ions, Fe XVII and Fe XXII**<sup>1</sup> ANIL PRADHAN, SULTANA NAHAR, The Ohio State U, WERNER EISSNER, Stuttgart U — The Iron Project and the Rmax Project aim in detail study of radiative and collisional processes of astrophysically abundant atoms and ions, mainly iron and iron-peak elements, over a wide energy range, from infrared to X-rays. The present work will report oscillator strengths for photo-excitations in Fe XXII, photoionization cross sections and electron-ion recombination rates for Fe XVII. The calculations were carried out in relativistic Breit-Pauli approximation. For Fe XXII, allowed electric dipole, forbidden electric quadrupole, electric octupole, magnetic dipole and magnetic quadrupole transitions will be presented. They represent a set of 771 bound fine structure levels with  $1/2 \leq J \leq 17/2$ . The calculated energy levels were identified spectroscopically using quantum defect analysis. For Fe XVII, results on photoionization and electron-ion recombination, total and level-specific obtained using the unified method, will be presented from the latest R-matrix calculations using a 60-level wave function expansion. The emphasis of this study is on the features in the high energy and high temperature region.

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Sultana Nahar  
The Ohio State University

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