

Abstract Submitted
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The Iron Project and the Rmax Project: New Computational Methods and Atomic Processes in Heavy Elements¹ JUSTIN OELGOETZ, SULTANA NAHAR, ANIL PRADHAN, The Ohio State University, GUOXIN CHEN, ITAMP, Harvard University, WERNER EISSNER, University of Stuttgart, CLIFFORD NOBLE, VALERIE BURKE, PHILL BURKE, Daresbury Lab — We describe recent progress in two sets of codes designed to study collisional and radiative processes in heavy elements: (I) The R-Matrix II method, and (II) The Full Breit-Pauli R-Matrix method. New calculations are in progress for the Iron group and heavier elements. Results will be presented for Fe and Ni ions in several ionization stages. In addition, the application of the Iron Project and the RmaX Project data to laboratory and astrophysical sources will be demonstrated, in particular for time-resolved spectroscopy of X-ray lines of He-like ions, and for the analysis of optical and near-infrared spectra of Fe I-II-III in active galactic nuclei including exact radiative transfer.

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