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[Invited Lecture]

On the atomic structure of the seven-times ionized sulfur ion S VIII

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Abstract: Seven times ionized sulfur (S VIII) is important in physical and astrophysical research. Some processes involving such ions play an essential role in astronomy, particularly in understanding high-energy astrophysical environments. The atomic properties of these ions can serve as diagnostic tools for the physical conditions in various physical and astrophysical plasmas. In this work, we calculated energy levels and oscillator strengths of the seven times ionized sulfur (S VIII). These atomic parameters were obtained using the Hartree-Fock pseudo-relativistic (HFR) and the Thomas-Fermi-Dirac-Amaldi (TFDA) potential approaches. Results were compared with the NIST-ASD database, Fischer and Tachiev (2004) and Pagan (2011) values. New energy levels and oscillator strengths were determined and can be applied to plasma diagnostics.

Keywords: Energy levels, Oscillator strengths, Seven times ionized sulfur