Electron Impact Excitation of Mg VIII

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Mg VIII emission lines are present in the solar corona and are a common feature in the spectra of Seyfert galaxies [1]. For example, the [Mg VIII] 3.03 μm line has been detected in the planetary nebula NGC 6302 as well as NGC 5548, 5929 and 1068 [2]. Accurate data for Mg VIII is important since it helps in the understanding of the coronal line region in active galactic nuclei.

In the present work collision strengths were calculated for all 7750 transitions between 125 jj levels of Mg VIII, extending the work of Zhang et al. (1994) [3] and Bhatia & Thomas (1998) [4]. The 125 fine-structure levels included in the calculation arise from the $2s^22p$, $2s2p^2$, $2p^3$, $2s^23s$, $2s^23p$, $2s^23d$, $2s2p3s$, $2s2p3p$, $2s2p3d$, $2p^23s$, $2p^23p$ and $2p^23d$ configurations. The latest RMATRXII suite of codes [5] was employed for the internal region R-matrix calculation to yield *LS* coupled results. The results were transformed into intermediate coupling via the code FINE which requires the use of term coupling coefficients. The external region STGF code [6] was utilised to obtain the final set of fine-structure collision strengths.

The collision strengths have been averaged over a Maxwellian distribution of electron velocities to yield the astrophysically important effective collision strengths. The results will be presented at the conference.

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