Abstract Submitted
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Forbidden transitions among $3d^6$ levels of Fe III[1] NARAYAN C. DEB, ALAN HIBBERT, Queen's University Belfast — Radiative rates for electric quadrapole (E2) and magnetic dipole (M1) transitions among lowest 32 levels belonging to the $3d^6$ configuration of Fe III are calculated using the CIV3 program of Hibbert [1]. In a recent calculation we [2] reported a large scale CI calculation of E1 transitions among all J-dependent levels of the 136 LS states belonging to the $3d^6$, $3d^5 4s$ and $3d^5 4p$ configuration of Fe III. The J-dependent wavefunctions of that calculation [2] are used in the present investigation to calculate transition probabilities of all possible E2 and M1 transitions among the lowest 32 levels of the $3d^6$ configuration. These results are then compared with only a few available theoretical calculations. We find that there are some substantial disagreements among various calculations for many of the transitions. Many of the present A-values for E2 and M1 transitions are significantly higher than the corresponding values in other calculations and this has an important effect on the analysis of astrophsyical observations.
[1] A.Hibbert, Comput. Phys. Commun. **9** (1975) 141
[2] N.C.Deb and A.Hibbert, J.Phys.B **40** (2007) F251

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