Energy levels, transition rates and lifetimes of 1s2s(^{3}S)3ℓ states for Li-like ions with $Z \leq 10$

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The study of the selective enhancement of 1s2snℓ states populated by cascades in single-electron transfer collisions of ions with He and H_2 targets have been studied by Zouros *et al.* [1]. In this work, we present the energy levels, transition rates and lifetimes for Li-like ions with $Z \leq 10$ in the 1s2s(^{3}S)3ℓ states calculated using the multiconfiguration Dirac-Fock (MCDF) code of Desclaux and Indelicato [2, 3]. The preliminary results obtained for the 1s2s3p levels are displayed in Figure 1.

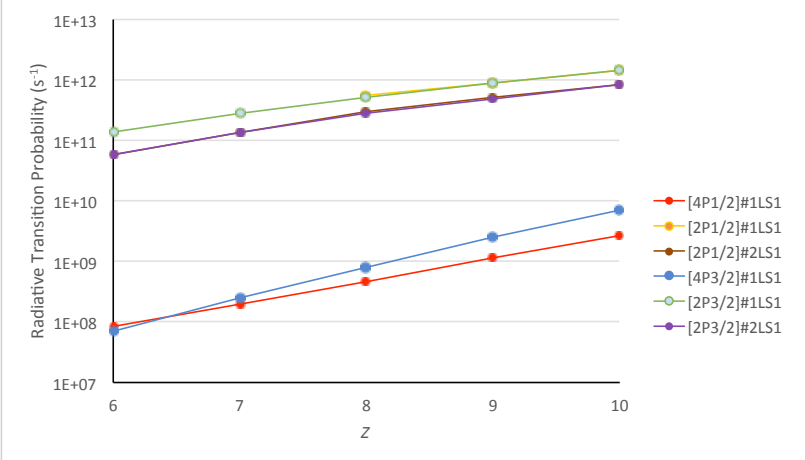

Figure 1: Total radiative transition probabilities of the 1s2s3p levels as function of the *Z*.

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References

[1] T. J. M. Zouros *et al.* 2008 Phys. Rev. A 77, 050701R
[2] J. P. Desclaux, Comp. Phys. Commun. 9, 31 (1975)
[3] P. Indelicato and J. P. Desclaux, Phys. Rev. A 42, 5139 (1990)