

# Relativistic correlation and QED effects on the radiative decay of $1s2s3s$ configuration in Li-like ions

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Fully relativistic configuration interaction method is used to calculate the one-electron one-photon (OEOP) and less explored intense two-electron one-photon (TEOP) transitions from states of  $1s2s3s$  configuration in Li-like ions with  $12 \leq Z \leq 54$ . The rates and energies are calculated using Multi Configuration Dirac-Fock wavefunctions in the active space approximation [1]. Special attention has been paid to elaborate the interplay between electron-electron correlation and higher order relativistic corrections on the line intensities. The TEOP transitions from the present three electron configuration and  $2s3s$  configuration in He-like ions [2] are analyzed so as to understand the impact of K shell spectator vacancies on the transition rates. The strong influence of TEOP transitions in the accurate evaluation of level lifetimes is emphasized. Present results are compared with few available theoretical data [3].

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- [1] P. Jonsson, Xe. He, C. Froese Fischer and I.P. Grant, *Comput.Phys.Commun.***177** (2007) 597  
[2]L. Natarajan, *Can.J.Phys.* (2018) (accepted for publication)  
[3]Y.Y. Goryayev, A.M. Urnov and L.A. Vainshtein, *At.Data and Nucl.Data Tables*,**113** (2017) 117