Auger electron yields of metastable Li-like projectile states repopulated by radiative cascades and Auger depletion

Content:
In Auger electron measurements of metastable projectile states, where the spectrometer lies at 0° to the ion beam, the overall detection solid angle varies with the electron emission position complicating the determination of the Auger electron yields. Recently, we published on a treatment of this problem based on a Monte Carlo approach utilizing the SIMION package [1]. Here, we extend our treatment to also include the repopulation of such states by radiative transitions from higher n-states as well as depletion by Auger effects. We make use of theoretical time-dependent results for the 1s2s2p 4s2p 4,2P states populated in 12 MeV C4+ + He collisions and evaluate the 4P/2P ratio of Auger electron yields, whose observed non-statistical production awaits further resolution [2].


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Track classification: oral

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Submitted on Sunday 09 August 2015

Last modified on: Monday 10 August 2015

Comments:
Co-financed by the European Union and Greek national funds through OP: Education and Lifelong Learning, Research Program: THALES.