

Peer Review

Review of: "Projectile Excitation to the $2s2p^3P$ and 1P Autoionizing States in Swift Collisions of He-Like Carbon and Oxygen Mixed-State ($1s^2$, $1s2s\ ^3S$) Ion Beams With Helium"

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The article describes an experimental and theoretical investigation of ion-impact excitation of helium using He-like carbon and oxygen (where presumably CO_2 was used as the original source, hence the mixed beam). It presents novel experimental and theoretical results in an open area of the field. The paper is of high quality and provides clear and thorough descriptions of the procedures undertaken. The depth of information should prove very useful to other researchers looking into these types of excitations.

Overall, the article consists of notable contributions, and I'm personally glad to see research of such quality presented in an open-access environment. It would have been nice for reference [1] to also have been published in this manner, since that paper carries the bulk of the description of the theoretical method used here.

I guess that would be my only criticism. Since reference [1] is pay-walled, it would be nice to have a bit more information on the 3eAOCC method here. I'm not asking for self-plagiarism, of course, but some more details regarding the basis and how it was chosen or calculated would add to the reproducibility of this work. Two formulas, one describing the basis states and another showing their relation to the states of the ions, would suffice.

Declarations

Potential competing interests: No potential competing interests to declare.