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Single vs. double electron emission following the beta decay of He-6[1] AARON BONDY, EVA SCHULHOFF, GORDON DRAKE, Univ of Windsor — When a helium atom containing a ^{6}He halo nucleus undergoes beta decay, the two atomic electrons become redistributed over all possible states of the daughter ^{6}Li nucleus, including single- and double-electron emission (shake-off). The present study focuses on the probability for double electron emission to form Li^{3+}, where there is a substantial disagreement between theory [1] and experiment [2]. We use pseudospectral representations together with Stieltjes imaging to separate the $Li^{3+} + 2e^-$ channel from the energetically overlapping $Li^{2+} + e^-$ single ionization channel. We find that the formation of Li^{3+} is strongly suppressed near threshold relative to Li^{2+}, thereby accounting for part of the disagreement with experiment. However, there still remains a substantial disagreement in the total probability.
[1] E. E. Schulhoff and G. W. F. Drake, Phys. Rev. A **92**, R050701 (2015).
[2] R. Hong et al., Phys. Rev. A **96**, 053411 (2017).

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