

Abstract Submitted
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Two-center approach to fully differential positron-impact ionisation of hydrogen¹ A.S. KADYROV, I. BRAY, Curtin University — The two-center approach to positron-impact ionisation of atomic hydrogen is shown to follow from the exact *post* form of the breakup amplitude [Kadyrov *et al.*, Phys. Rev. Lett. 101, 230405 (2008)]. In such approaches distinct ionization amplitudes arise from each center for the same ionization process. The fully differential cross section for positron-impact breakup of atomic hydrogen is calculated including direct ionisation of the target and electron capture into the positronium continuum. We show that the coherent combination of the amplitudes leads to unphysical oscillations in the differential cross sections, whereas the incoherent combination does not. On this basis it is concluded that two-center approaches to the problem should assume incoherent combination of the amplitudes from direct ionisation of the atom and positronium formation in the continuum. The latter is also consistent with the unitarity of the close-coupling formalism.

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