

Abstract Submitted
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Young-type oscillations in the autoionizing $\text{He}^{2+} + \text{H}_2$ double capture collision: A new challenge for theoreticians R.O. BARRACHINA, Centro Atomico Bariloche, 8400 Bariloche, Rio Negro, Argentina, B.S. FRANKLAND, J.-Y. CHESNEL, F. FREMONT, Centre de Recherche sur les Ions, les Materiaux et la Photonique, 6 Bd Marechal Juin, 14050 Caen cedex 04, France — We study the Young-type process, $\text{He}^{2+} + \text{H}_2 \rightarrow \text{He}^{**}(2l nl', n \geq 2) + 2 \text{H}^+$, where the autoionizing Helium outgoing projectile plays the role of the source of a single electron, while the two residual protons provide a double-center interferometer. The autoionization lines are found to oscillate with the angle in the range 90-170 degrees, in agreement with previous expectations. However, as shown in this communication, our experimental results do not agree with the available theoretical models in some key issues. For instance, the loci of the oscillations in momentum space do not coincide in theory and experiment, except in the neighborhood of the backward direction. Some hints on the possible origin for these disagreements will be discussed in detail at the conference.

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