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Recoil-Ion Momentum Distribution in Positron-Impact Ionization Collisions R.O. BARRACHINA, Centro Atomico Bariloche and Instituto Balseiro, Argentina, A. DELESQUE, R. TRICARD, Ecole Nationale Superieure d Ingenieurs de Caen and Centre de Recherche, France, F.O. NAVARRETE, R. DELLA PICCA, J. FIOL, Centro Atomico Bariloche and Instituto Balseiro, Argentina, V.D. RODRIGUEZ, Departamento de Fisica and Instituto de Fisica de Buenos Aires, Argentina — We employ a Classical Trajectory Monte Carlo simulation and a Continuum Distorted Wave - Eikonal Initial State model to study the distribution of the recoil ion momentum (RIM) in the single ionization of H2 molecules by positron impact. We observe that this distribution reaches a finite value at the kinematical threshold, an effect that can be related to the familiar "electron capture the continuum" peak of electron momentum spectroscopy. We also analyze a second threshold of the distribution which–up to our knowledge–has never been reported in the literature. We propose that this new effect represents a fingerprint of a strong orientation of low-energy electrons into the direction of motion of the electron-positron centre-of-mass.

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