

Abstract

The **COLTRIMS** reaction microscope with high momentum resolution and high multi-coincidence efficiency has been utilized to obtain the complete final-state momentum distributions of electrons emitted in the slow p-H₂ collisions for completely determined motion of the nuclei. The single ionization (**SI**) and the transfer ionization (**TI**) of H₂ have been investigated. Electron momentum distributions for the **TI** of H₂ showed that the salient feature of these distributions consists in the appearance of two groups of electrons with different structures. The first group (saddle electrons) consists of electrons emitted preferentially in the scattering plane with velocities between zero and the projectile velocity. The other group consists of electrons ejected with velocities greater than the projectile velocity resulting from a narrow range of impact parameters. An obvious indication of the existence of these fast forward electrons could be seen in the theoretical work of Sidky et al.