

**Helium ionization by Si<sup>-</sup> ions at intermediate velocities: Direct and electron loss channels**

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Cross sections were measured for the ionization of helium targets under the impact of Si<sup>-</sup> anions. The velocities ranged from 1.0 to 2.0 a.u. Recoil ions originated from the target (He<sup>+</sup> and He<sup>2+</sup>) were measured in coincidence with projectiles in several final charge states ( $q=-1, 0, +1, \text{ and } +2$ ). These states, negative, neutral, and positive, respectively, correspond to direct, single, and multiple electron loss channels. These measurements give sequence to our previous measurements for the ionization of helium targets under the impact of C<sup>-</sup> anions, and the H<sub>2</sub> and N<sub>2</sub> ionization and dissociative ionization by C<sup>-</sup> and O<sup>-</sup> anions. These previous results pointed that both target ionization and projectile direct or single electron loss processes were dominated by large impact parameters, while multiple electron loss were associated to small impact parameters.