ELECTRON COLLISIONS WITH C_3H_6 ISOMERS

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Propene and cyclopropane are the two existing isomers of C_3H_6 molecule. Propene is an open chain molecule and belongs to the C_s group. Cyclopropane is a closed chain molecule and belongs to the D_{3h} group.

Experimental [1, 2, 3] and theoretical [4] studies investigated the *isomer effect* in the electron-collisions cross sections of the C_3H_6 isomers. They concluded that the cross sections for these isomers differ for energies below 40 eV. Another experimental [5] and theoretical [6, 7] studies investigated the electron-collisions with cyclopropane.

In this work we present results for electron-collisions with isomers of C_3H_6, propene and cyclopropane. Our calculations employed the Schwinger multichannel method with pseudopotentials at the static-exchange (SE) and static-exchange plus polarization (SEP) approximations.

Figure 1 shows a comparison of our elastic cross section for cyclopropane with those of Refs. [6, 7]. All calculations were performed at the SEP approximation. Our cross section agrees well with the results of Beyer *et al.*, except for the position of the shape resonance, and lies below the results of Curik and Gianturco.

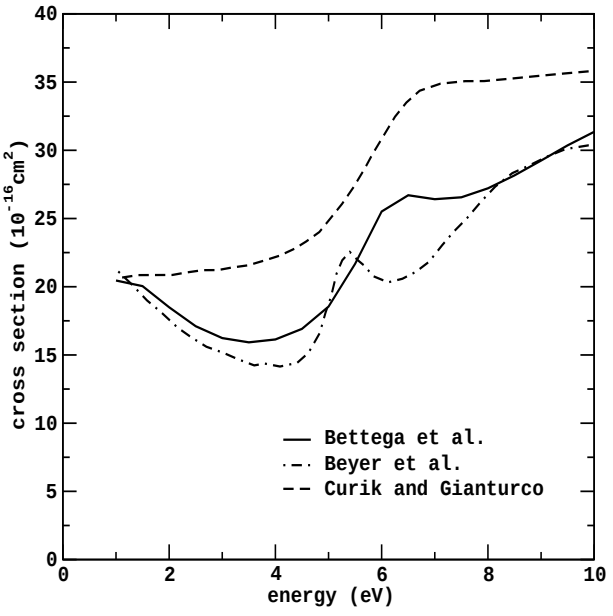

Fig. 1. Integral cross section for cyclopropane.

Figure 2 shows a comparison of our elastic cross section for propene at the SE and SEP approximations with total cross section of Ref. [3]. In particular our cross section shows a shape-resonance located at the same position of the resonance seen in the total cross section.

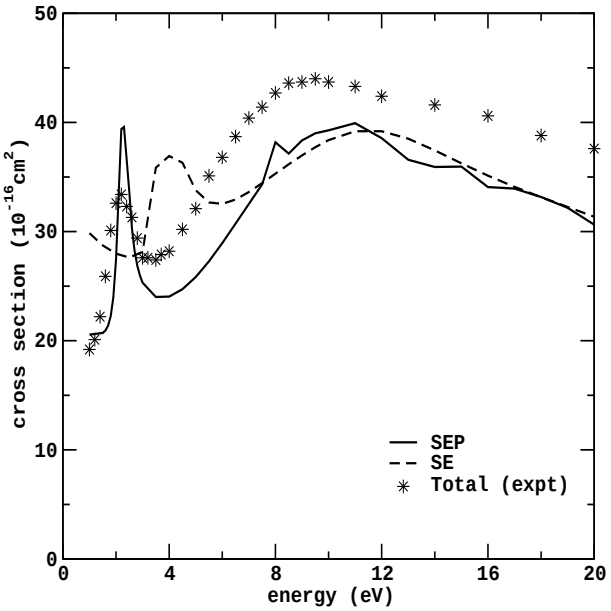

Fig. 2. Cross section for propene.

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