

CROSS SECTIONS FOR ELASTIC ELECTRON-C₃H₈ COLLISIONS

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Electron- hydrocarbons scattering data are relevant to various applications such as combustion and interstellar clouds chemistry, and cometary and planetary's atmospheres¹ studies. They also play important role in fusion plasma modeling as some hydrocarbons are generated in fusion plasmas by the continuous sputtering of graphite lined *tokamak* walls. Hydrocarbons like C₃H₈ are used as source of carbon atoms during chemical vapour deposition reactions as well as in plasma processing in industries². Although several groups have already measured total cross sections (TCS) in the intermediate energy range for e⁻-C₃H₈ much less is available on experimental elastic differential scattering cross sections (DCS)³ and more information is needed.

In this work we report experimental DCS values for e⁻-C₃H₈ in the 100 to 500 eV energy range and for scattering angles of 7 to 130 degrees. The measurements were performed in a crossed-beam experiment and absolute values were obtained with the Relative Flow Technique (RFT). In Fig. 1, we show our experimental data at 100 eV in comparison to available values. Excellent agreement is seen between the two sets of experimental data. More results and discussion will be presented during the Symposium.

We thankfully acknowledge the financial support of FAPESP, CNPq, and FINEP-PADCT.

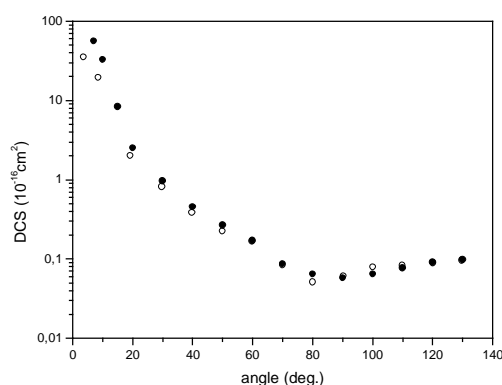


Figure 1 DCS for e⁻ - C₃H₈ scattering at 100 eV.

Full circles, present experimental data; open circles, experimental results of Tanaka et al.³.

References

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3. H. Tanaka et al, *Phys. Rev. A* **59**, 2006 (1999)