

Elastic low-energy electron collisions with the tetramethyltin molecule

P. A. S. Randi^{1*}, G. M. Moreira², M, H. F. Bettega¹

¹*Departamento de Física, Universidade Federal do Paraná, Caixa Postal 19044, Curitiba, Paraná 81531-980, Brazil*

²*Departamento de Física, Universidade Estadual do Centro-Oeste, Guarapuava, Paraná 85040-167, Brazil*

*email: pasr@fisica.ufpr.br

The electron scattering by molecules has several applications, mainly in the biological and industrial areas. The principal use in the industry is devoted to plasma processing, which is important in the microelectronic components production. The cross sections data obtained for the electron scattering processes by molecules are vital to understanding the dynamics of these plasmas. In this work, we report the elastic integral, differential and momentum transfer cross sections for the low-energy electron scattering by tetramethyltin [Sn(CH₃)₄]. This molecule has been studied due to its potential application in the manufacture of thin films through plasma processing techniques [1,2]. To calculate the cross sections we employed the Schwinger multichannel method implemented with norm-conserving pseudopotentials in the static-exchange and static-exchange plus polarization level of approximations up to 30 eV.

References

1. M. Jubault, J. Pulpytel, H. Cachet, L. Boufendi, and F. Arefi-Khonsari, *Plasma Processes and Polymers*, **4**, S330-S335 (2007)
2. J. Hu, Y. Zong, Y. Z. Wang, R. Förch, and W. Knoll, *Thin Solid Films*, **472**, 58-63 (2005)