FRAGMENTATION OF CORE-IONIZED ADAMANTANE MOLECULE

S. GANGULY[1] and S. MACLOT[2]

[1]*Department of Physics, Lund University, 22100 Lund, Sweden*
E-mail smita.ganguly@sljus.lu.se

[2]*Institut Lumiere Matiere, CNRS, Univ Lyon, F-69100 Villeurbanne, France*
E-mail sylvain.maclot@univ-lyon1.fr

Abstract. Adamantane is the smallest diamondoid molecule with a highly stable cage structure. In this project, we study the fragmentation of the adamantane molecule following C-1s ionization using soft X-rays. We measured NEXAFS, XPS and Auger electron-Photoion coincidence data at the PLEIADES beamline in SOLEIL, France. Experimental data and theoretical calculations show site-selective Auger decay, followed by hydrogen evaporation and dissociation. We present a complete study of all the ion pairs formed after fragmentation and the total kinetic energy released. We also compared our results to the dissociation dynamic of valence ionized adamantane reported by Maclot et al. 2020.

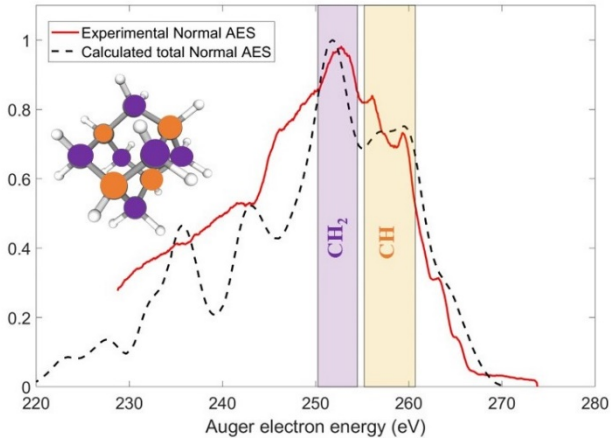

Figure 1: Auger electron spectrum of adamantane recorded at 350 eV photon energy, showing the contribution of CH and CH_2 type carbons.

References

Maclot, Sylvain, et al. : *Scientific reports* 10.1 (2020): 1-12