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Anion and cation formation following Cl (1s) and S (1s) excitation in the $SOCl_2$ molecule[1] L.C. COUTINHO, G.G.B. DE SOUZA, Instituto de Química, Universidade Federal do Rio de Janeiro Brazil, A.S. SCHLACHTER, W.C. STOLTE, AMPHOL WONGJAMRAS[2], Lawrence Berkeley National Laboratory — The ionization of deep core-level electrons is normally followed by a complicated array of processes involving cascading Auger mechanisms and giving rise to highly charged species. In contrast, the ionization of shallow core-level electrons in molecules is usually followed by Auger processes involving the depletion of valence-shell electrons. We have recently shown that the Cl (1s) and S (1s) excitation of the chloroform ($CHCl_3$) and dimethylsulfoxide (CH_3SOCH_3) molecules leads to the formation of a rich array of positive and negative ions. Anion formation is particularly interesting due to the low probability of formation; they usually originate from decay pathways distinct from the pathways associated with cation formation. In the present work, cationic and anionic mass spectrometry results are presented for the $SOCl_2$ molecule, excited both in the Cl (1s) and in the S (1s) edges in experiments at the ALS beamline 9.3.1.

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