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Electron scattering measurements from molecules of technological relevance¹ DARRYL JONES, School of Chemical and Physical Sciences, Flinders University

Biomass represents a significant opportunity to provide renewable and sustainable biofuels [1]. Non-thermal atmospheric pressure plasmas provide an opportunity to efficiently breakdown the naturally-resilient biomass into its useful subunits [2]. Free electrons produced in the plasma may assist in this process by inducing fragmentation though dissociative excitation, ionization or attachment processes [3]. To assist in understanding and refining this process, we have performed electron energy loss experiments from phenol (C_6H_5OH), a key structural building block of biomass. This enables a quantitative assessment of the excited electronic states of phenol. Differential cross sections for the electron-driven excitation of phenol have also been obtained for incident electron energies in the 20-250eV range and over 3-90° scattering angles.

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