

## Molecule fragmentation at the Dresden EBIS-A<sup>a)</sup>

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We report on molecule fragmentation measurements of propane in high dense electron beams of a room-temperature electron beam ion source, the so-called Dresden EBIS-A. After fragmentation of propane molecules in the electron beam the fragments were continuously extracted and  $q/A$  separated by a bifocal dipole magnet. Fragmentation spectra were measured at working gas pressures of  $10^{-9}$  mbar up to  $10^{-8}$  mbar, electron currents of 29 mA up to 75 mA, and electron energies of 11 keV up to 15 keV. Thereby all possible stoichiometric ratios of propane fragments were detected. At low electron beam currents the ion current output of the  $\text{CH}_x^+$  ( $x=0-3$ ) and the  $\text{C}_2\text{H}_x^+$  ( $x=0-5$ ) fragments is nearly identically. At higher electron currents the  $\text{CH}_x^+$  ( $x=0-3$ ) peaks dominate the spectra and the ratio between the  $\text{C}^+$  peak and  $\text{CH}_x^+$  ( $x=0-3$ ) peaks increases from 2:1 to 3:1. It was shown that the working gas pressure has no significant influence on the fragment distribution but on the total ion current. © 2008 American Institute of Physics.

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