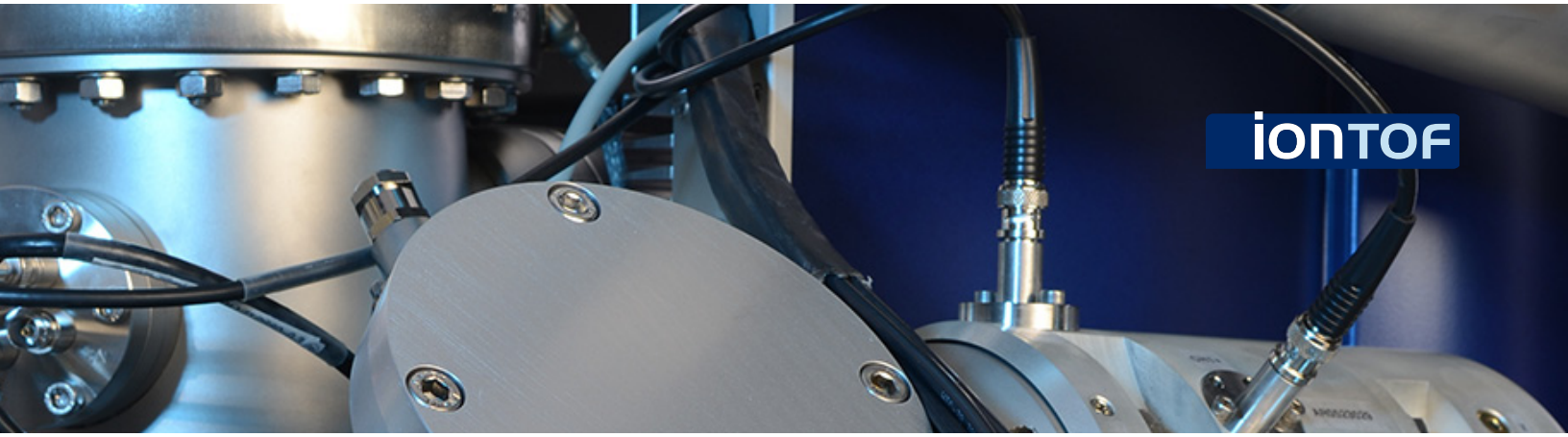

2 4

Gas Cluster Source

The best solution for organic depth profiling

The characterisation of organic layer systems is of increasingly high technological and commercial interest. The use of large argon clusters as sputter species in Time-of-Flight SIMS experiments allows the depth profiling of organic materials to be carried out whilst retaining the intact molecular information during the profile. With the fully integrated gas cluster ion source IONTOF provides a comprehensive solution for organic SIMS applications.

The preservation of molecular information under high-dose sputtering conditions is not only a pre-requisite for depth profiling and 3D analysis of organic materials, but it also boosts the amount of sample material available beyond the static SIMS limit in high-resolution imaging.

IONTOF

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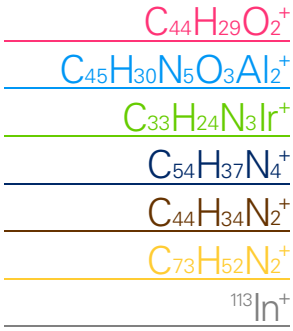
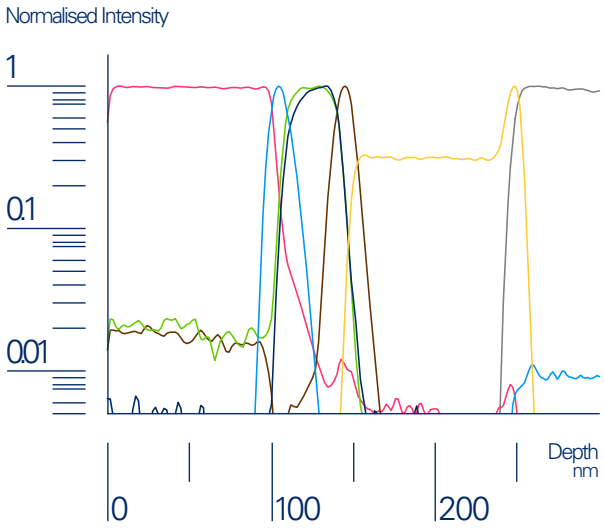
OLED layer system analysis

With the gas cluster source it is now possible to depth profile through complex organic layer systems and analyze the organic composition. The example shows a SIMS depth profile through the organic layer structure of an OLED device displaying the signal intensities of the different intact molecules.



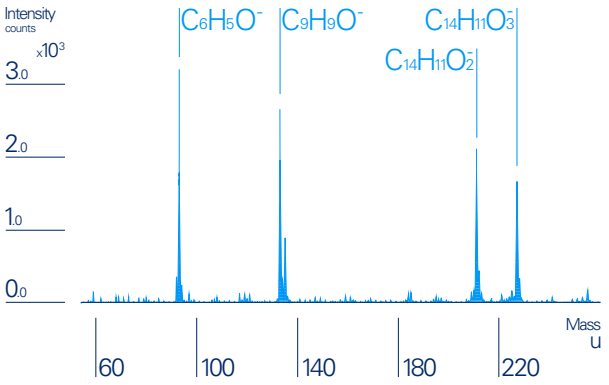
SIMS depth profile through the organic layer structure of an OLED device displaying the signal intensities of the different intact molecules.



Low fragmentation surface spectrometry

In analysis mode large argon clusters have also been successfully utilised as primary ion projectiles. This opens up the possibility to control the degree of fragmentation in the mass spectrum.

The example shows an analysis of polycarbonate using large argon clusters as primary ions with a beam energy of 20 keV. The selected cluster size was approximately 7500 argon atoms per cluster which corresponds to an average energy of 2.6 eV/atom. The spectrum prominently shows the signals of the four most characteristic peaks of polycarbonate.



Spectrum of polycarbonate using large argon clusters as primary projectiles.