

# COMPACT SIMS

Mass Spectrometry in solid material



## Overview

The Hiden Compact SIMS tool is designed for fast and easy characterisation of layer structures, surface contamination and impurities with sensitive detection of positive ions being assisted by the oxygen primary ion beam and provides isotopic sensitivity across the entire periodic table.

The ion gun geometry is set for nanometre depth resolution and near surface analysis.

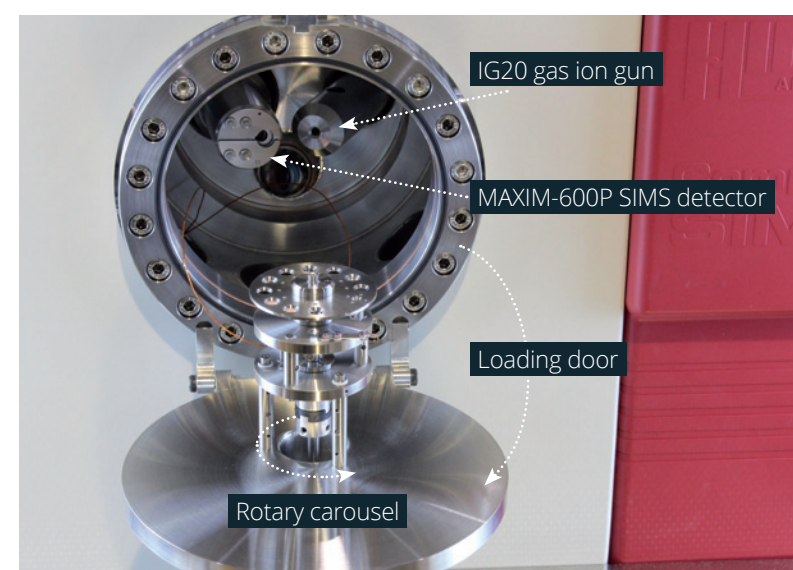
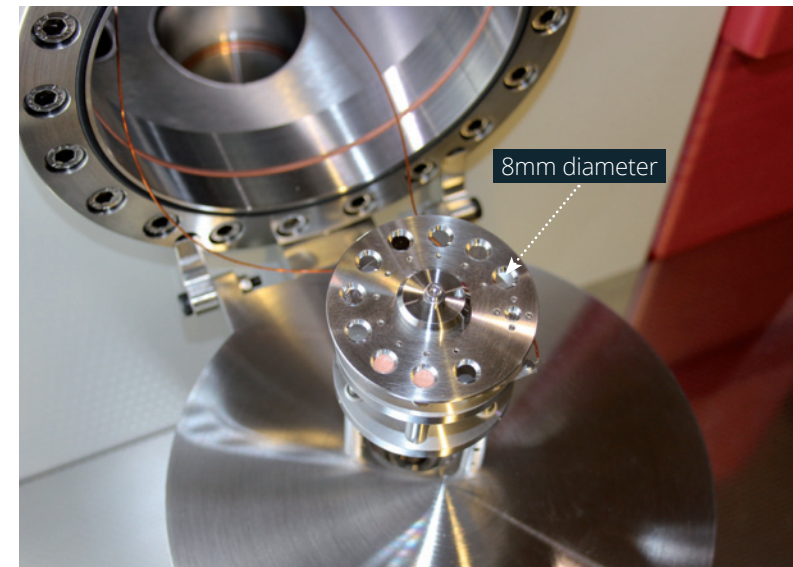


### Features

- ▶ Small footprint
- ▶ Easy “user friendly” layout
- ▶ Single phase electrical power
- ▶ Wheeled trolley design
- ▶ Positive SIMS and SNMS
- ▶ Depth Profiling
- ▶ 3D characterisation and imaging
- ▶ Mass spectra
- ▶ Isotopic analysis

### Sample Loading

A rotary carousel enables 10 samples to be simultaneously loaded for measurement into the dry-pumped vacuum chamber.



### Applications

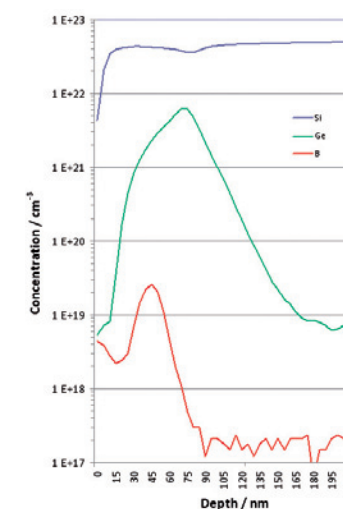
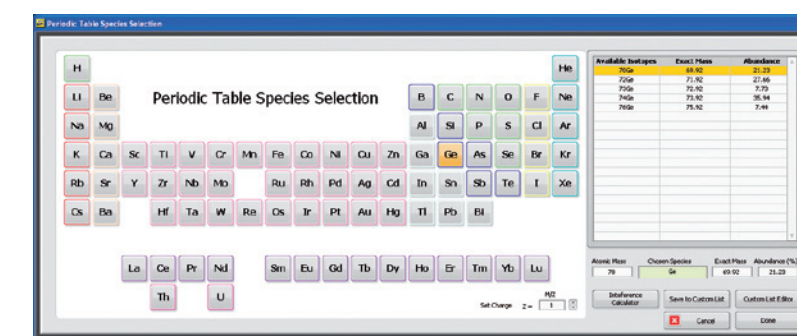
#### Depth Profiling:

The experiment flow shown here has three channels (Si, Ge and B).

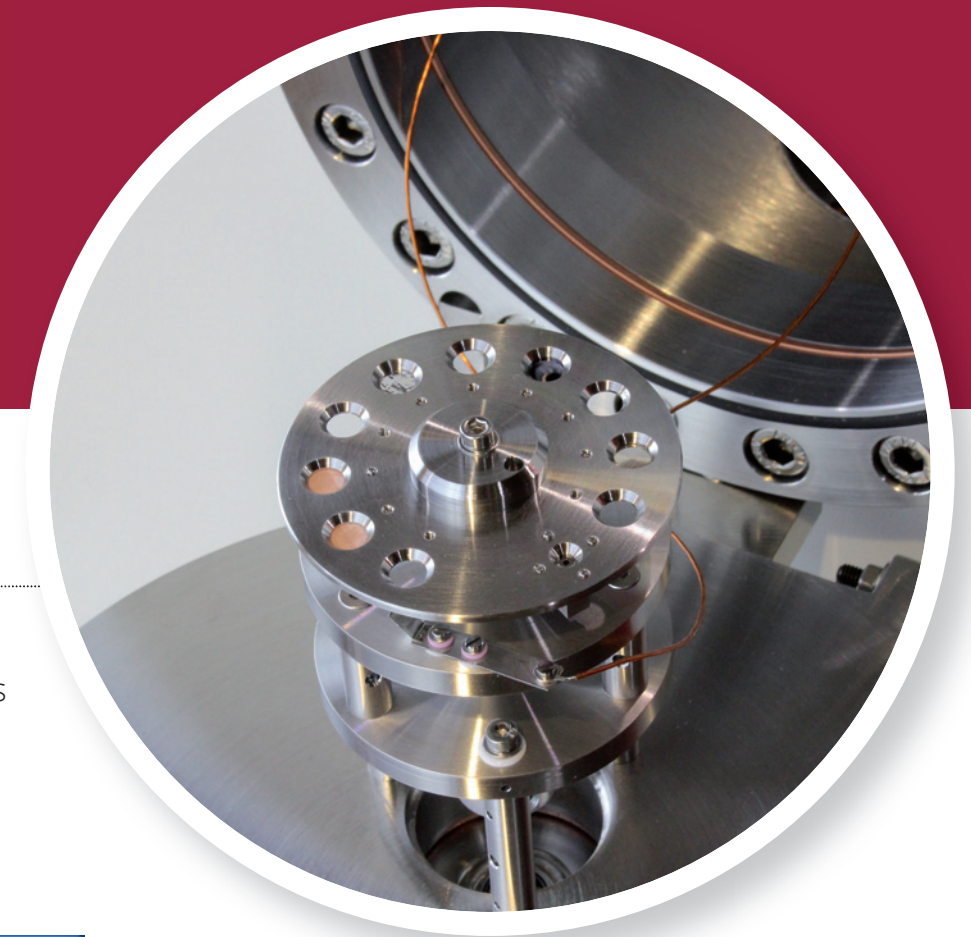
Species can be selected or deselected for analysis – this allows a non-expert user to control a range of experiments from a single template.



Mass for analysis is chosen from a periodic table and can include molecules and multiply charged species. Experienced users can also input data directly.

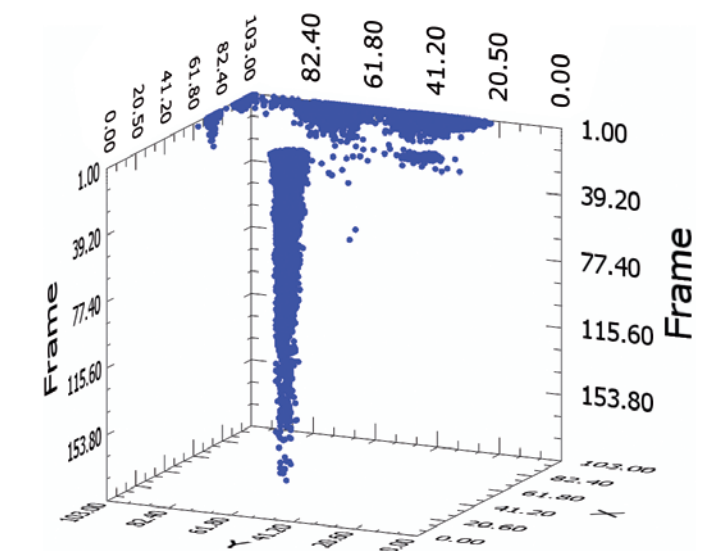


- ▶ Depth Profile from Compact SIMS
- ▶ SiGe with Boron Doping
- ▶ Primary ions 5keV O<sub>2</sub><sup>+</sup>
- ▶ Positive secondary ions



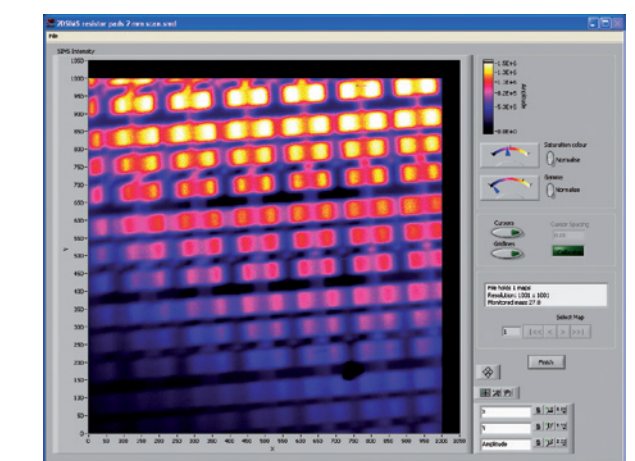
#### 3D Profiling by SIMS:

The image shows the mass resolved aluminium signal arising from aluminium oxide grit particles embedded in the work-piece after a grinding operation. Volume is 800µm square x 35µm deep.



#### Elemental Surface Mapping:

- ▶ Easy to use elemental surface mapping software



Elemental Surface Map of semiconductor resistor array.

### Summary

- ▶ Small and easy to use SIMS and SNMS
- ▶ Fast characterisation of layered structures
- ▶ Nanometre depth resolution