

Looking into a microscale with high resolution (spatial, volume and mass) using LG-SIMS: multifaceted applications at NordSIMS

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Secondary Ion Mass Spectrometry (SIMS) stands as an essential in-situ analysis tool for precise determination of isotopic and trace elemental compositions, being renowned for its outstanding sensitivity and spatial-volume-mass resolution capacities, as well as its capability to measure both positive and negative ions. In addition to microprobe (spot) analysis, ion imaging analyses are revolutionising our understanding of geological/ biogeochemical processes.

The NordSIMS laboratory is equipped with a CAMECA ims1280 large-geometry SIMS (LG-SIMS) instrument. Installed in 1995 and regularly upgraded to remain state-of-the-art, the laboratory has undertaken numerous projects across a broad range of fields including geochronology, cosmochemistry, geobiology, ecology and nuclear safeguards, often pioneering new applications. This presentation provides an overview of SIMS capability and highlights several unique applications conducted at NordSIMS, which remains dedicated to pushing the boundaries of micro-analysis.