

Recent developments in the use of SIMS in cosmochemistry

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Cosmochemistry is an interdisciplinary field of research which involves the laboratory analysis of extraterrestrial materials, such as meteorites, lunar samples and cosmic dust. The studies of these materials give clues not only about the origin of individual samples, but also about the origin and history of the Solar System. Secondary ion mass spectrometry is a well-established analytical technique in this field and has been used predominately for isotope and trace element studies. Recent advances in instrumentation, especially the introduction of the CAMECA NanoSIMS, have had a tremendous impact on this field and led to several groundbreaking scientific discoveries.

In this talk I will review the use of SIMS in cosmochemistry in general and then focus on the advances that have become possible with the NanoSIMS and its ability to perform isotope imaging studies at a spatial resolution of 100 nanometers.