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The NanoSIMS technique: Applications from cosmochemistry and biomineralization

A. Meibom

Museum National d'Histoire Naturelle

Laboratoire d'Etude de la Matiere Extraterrestre

USM 0205 (LEME), Case Postale 52

61, rue Buffon, 75005 Paris

The NanoSIMS is a recently developed ion microprobe that offers unparalleled spatial resolution, down to 50 nanometers, in combination with extremely high sensitivity. This instrument therefore enables high resolution imaging of variations in major, minor, and trace element distributions, as well as isotopic composition, in both conductive and insulating solids, including biological materials, on length scales much smaller than one micrometer.This opens up a new set of analytical possibilities. An explanation of this instrument will be provided together with examples of applications from cosmochemistry and biomineralization.