

Development on submicron-scale U-Pb dating by Laser post-ionized SNMS

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In order to decipher the history of the Solar System, in-situ U-Pb dating method using SIMS (Secondary Ion Mass Spectrometry) has been used over 40 years, of which spatial resolution is 2-10 micron. In general, the secondary ion yield of SIMS is so low (less than 1 %) that it has been the weak point of this in-situ analysis. Here, we report the performance of Pb isotope measurement using the Laser SNMS that consist of of Ga-ion source for primary beam, femto-second laser for post-ionization, and the multi-turn TOF-SIMS for mass spectroscopy (Ishihara et al. 2010).

Keywords: U-Pb dating, mass spectrometry, in-situ analysis, isotope analysis