

New frontier of Earth, Space and Life Sciences pioneered by the developments of Science-oriented mass spectrometer

*Kentaro Terada¹, Michisato Toyoda¹, Takafumi Hirata²

1.Graduate School of Science, Osaka University, 2.Graduate School of Science, Kyoto University

So far, various mass spectrometers, which can determine elemental abundance, isotopic composition and molecular weight of macromolecules have greatly contributed to understanding of the Earth, Space and Life sciences. Above all, high-precision isotopic measurements of natural samples using sensitive mass spectrometers provide us an important clue to decipher the origin and evolution of the Earth and Planetary system. On the other hand, it is well known that many unknown/unresolved scientific issues are still remained because of technical restrictions of “general-purpose” commercially-available mass spectrometers. Therefore, “science-oriented” development of mass spectrometer has been highly desired.

Here, Osaka University, Geochemical Society Japan, and Mass Spectrometry Society of Japan collectively propose the ideas of an innovative development of mass spectrometers that are specialized for the “Scientific issues”, in order to pioneer a new horizon of the Earth and Planetary Science (e.g. deciphering of the pre-solar history, Galactic chemical evolution, on-site real-time geochemistry, big-data geochemistry, and so on).