

# JAXA's Technology Roadmap & Application of "Mass Spectrometry"

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In-situ analyses including mass spectrometry at the lunar and planetary surface have not been considered as the space technology roadmap of JAXA so far. There have been several mass spectrometers on-board Japan's spacecrafts such as Nozomi Mars explorer, Kaguya lunar orbiter and Bepi-Colombo/MMO for Mercury mission, but they are especially for measuring space plasma and atmosphere environments where ionization is not essentially needed. When neutral solid materials on the Moon and planets need to be treated for mass spectrometry on site, an ionization system such as laser ablation should be considered and there are some possibilities for applying measurements such as K-Ar or other chronology. The aim of detecting amino acid from the aspect of astrobiology, analyzing the composition of the complex and measuring isotopic ratio for the classification of rocks or other purposes etc, is both the scientific and exploration purposes. In order to ensure quantitative measurements, detection systems such as multi-turn TOF-MS will be considered. Strategic and feasibility study for pursuing an installation of the equipment onboard will be discussed.