

# Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

©2011. Japan Geoscience Union. All Rights Reserved.



PPS023-P04

Room:Convention Hall

Time:May 26 16:15-18:45

## ”Small is beautiful” planetary missions

Yasuhito Sekine<sup>1\*</sup>, Akihide Hibara<sup>2</sup>, Kojiro Suzuki<sup>1</sup>, Seiji Sugita<sup>1</sup>, Takafumi Matsui<sup>3</sup>

<sup>1</sup>Grad. Sch. of Frontier Sci., Univ. Tokyo, <sup>2</sup>Inst. Industrial Sci., Univ. Tokyo, <sup>3</sup>PERC, Chiba Inst. Tec.

Micro-Total Analysis System (micro-TAS) describes a miniaturized chip-sized device that automates all necessary steps for chemical analysis of a sample, such as sampling, transport, filtering, dilution, reactions, separation, and detection. Such micro-TAS technology has been originally developed in analytical chemistry and recently has started to be widely applied in many fields, e.g., medical care, marine technology, and police investigation. Because of its very small size, micro-TAS can be placed close to a sampling site, where human cannot reach easily. In this paper, we discuss possible applications of micro-TAS to space and planetary explorations. Together with our small and distributed FS landers, we propose a new type of planetary explorations with the aim of detection of biomarkers and volcanic gases on Mars, Titan and Enceladus.

Keywords: planetary explorations, chemical analysis, Mars, Titan, methane, volcano