

## Basic Studies for Development of Active X-ray Generators Used in X-ray Fluorescence Spectrometer on Future Lunar Landing Missions.

\*Hiroshi Nagaoka<sup>1</sup>, Naomichi Tanaka<sup>2</sup>, Shintaro Kiga<sup>2</sup>, Masayuki Naito<sup>2</sup>, Nobuyuki Hasebe<sup>1,2</sup>, Haruyoshi Kuno<sup>1</sup>

1. Res. Inst., Waseda Univ., 2. School Adv. Sci. Engineering, Waseda Univ.

Development of Active X-ray Generator (AXG) has performed in order to mount Active X-ray Spectrometer (AXS) for future lunar landing mission. AXS consisting of X-ray generator and silicon drift detector, is an elemental analyzer to determine the chemical composition on site by X-ray Fluorescence Spectroscopy. We have developed two types of AXG without radioisotopes, the first is a pyroelectric X-ray generator (PXG), and the second is a carbon-nanotube X-ray generator (CXG). Basic studies to increase X-ray intensities by changing the inner conditions of PXG (target shape, crystal size, inner gas pressure, etc.) have been performed. Furthermore, X-ray intensity of the improved PXG is compared with that of CXG. In this presentation, the current status of development of PXG and CXG will be reported and discussed.

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