Depth profile analysis of light elements using J-PARC MUSE

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Recently, the intense pulsed muon source, J-PARC/MUSE has been constructed (Miyake et al. 2009), providing the potential of the 3-D elemental map from the near surface to the interior of the planetary materials.

Here, we report on the depth profile analysis of the four layered sample that consists of SiO\textsubscript{2}, C (graphite), BN (boron nitride) and SiO\textsubscript{2} changing the Muon's momentum from 37.5MeV to 57.5MeV/c. Muonic X-ray from B, C, N and O are successfully detected through SiO\textsubscript{2} plate of which thickness is about 1 mm.

Keywords: Muon, J-PARC, Characteristic X-ray, Non-destructive measurement, depth profile analysis