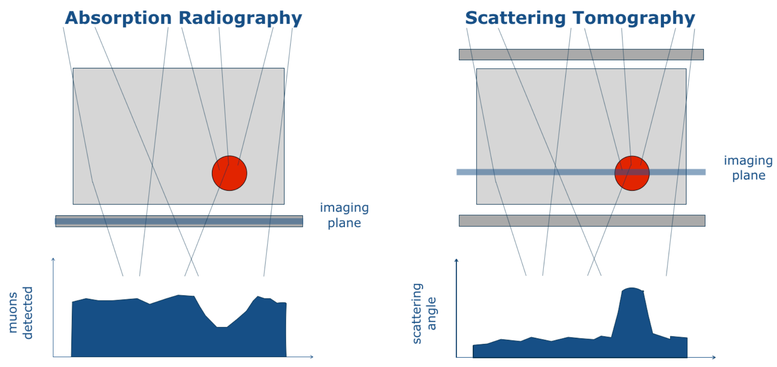
Lynkeos MIS: A Muon Imaging System for Nuclear Waste Containers

LYNKEOS TECHNOLOGY LTD

The Lynkeos Muon Imaging System (MIS) uses cosmic-ray muons for the 3D-imaging of the contents of shielded nuclear waste containers. The Lynkeos MIS is operating on the Sellafield site since October 2018 as the worldwide first muon imaging system that is deployed on a nuclear site. It also is the first CE-marked large-scale particle tracking detector.

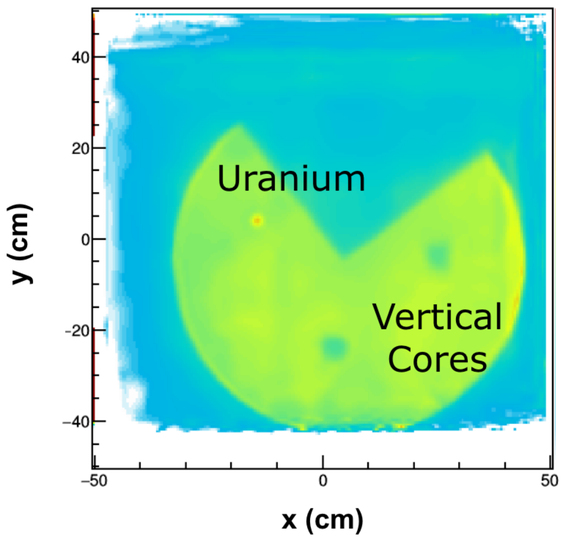


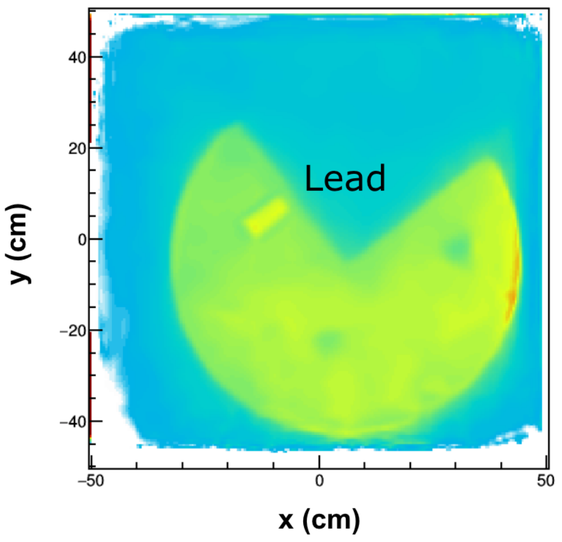
The detector system consists of four scintillating fibre tracker modules using 64 channel MPAMTs as readout, two above and two below the object, to track the muons. Complex imaging algorithms then reconstruct a 3D image of the object and its contents.

The Lynkeos MIS is the result of a 9 year R&D effort, funded by the UK Nuclear Decommissioning Authority and Innovate UK and carried out by the University of Glasgow, NNL Ltd and since 2016 by Lynkeos Technology Ltd.

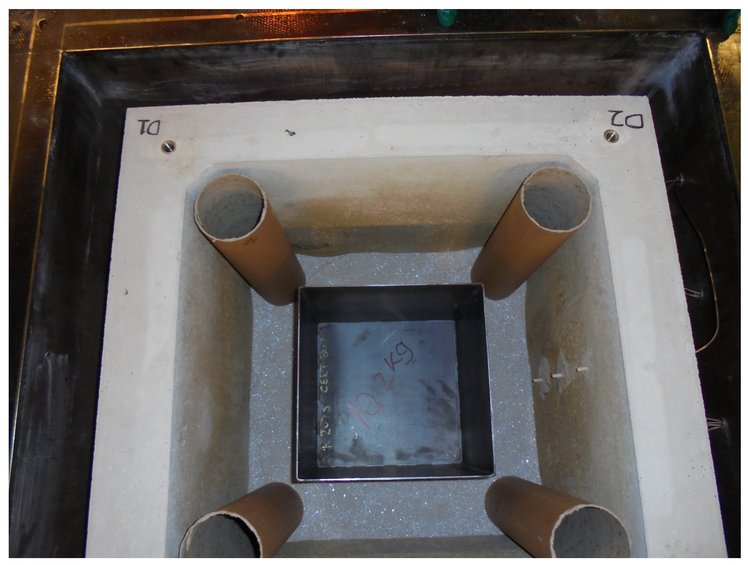
The system was originally designed for 500l ILW drums, but has since also been used for GeoMelt vitrified waste containers. It has successfully demonstrated that it can provide non-destructive imaging of the contents of containers whose shielding is too thick for any other method.

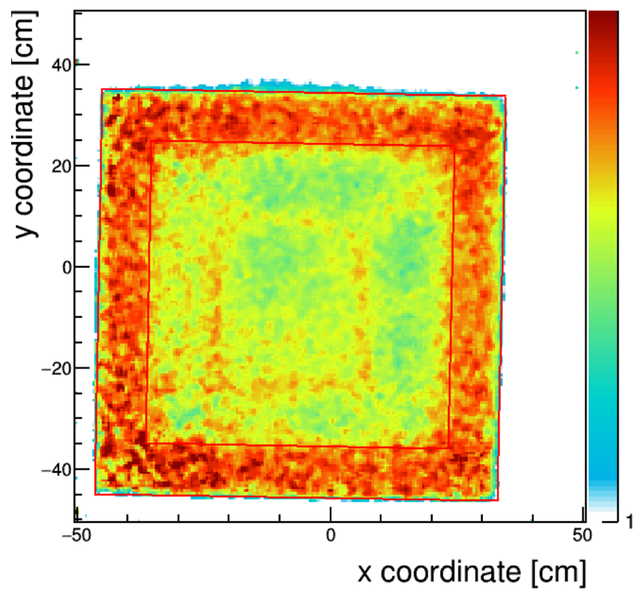
500l ILW Drum





GeoMelt Container





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