

LIPAc Grounding Network: A Study for Accelerator Grounding Systems

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A Li(d,xn) fusion relevant neutron source with a broad peak at 14 MeV is indispensable to characterize and qualify suitable structural materials for the plasma facing components in future fusion reactors. LIPAc (Linear IFMIF Prototype Accelerator), presently under its installation and commissioning phase in Rokkasho, will validate the concept of a 40 MeV deuteron accelerator with its 125 mA CW and 9 MeV deuteron beam for a total beam average power of 1.125 MW.

The LIPAc grounding network has been designed unifying the building and the accelerator grounding systems. The powerful 6MW RF system working together with low currents beam instrumentation devices require both a reliable electrical system and a good grounding system.

In order to assess the reliability of LIPAc, from the point of view of the electrical installations and the electronic components, a detailed study of existing grounding system has been carried out. This analysis has been completed with a comparison with similar accelerator facilities.

This paper proposes, based on a practical approach, potential improvements to increase the availability of LIPAc electrical and electronic equipment and to minimize downtimes due to corrective maintenance activities.

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