



Contribution ID: 36

Type: **Oral presentation (preferred)**

A Study on the Composition of the Concrete at the High Intensity Proton Accelerator in PSI

Thursday, 30 May 2024 12:10 (20 minutes)

The High Intensity Proton Accelerator (HIPA) at the Paul Scherrer Institut (PSI), Switzerland, just celebrated its 50th birthday. During these 50 years, the concrete shielding blocks are added, removed, or replaced constantly due to changing operational requirements, new experimental setups and/or structure damages. For the first time after 50 years, a thorough study of the concrete composition of the shielding blocks and walls in HIPA was carried out for a better understanding of the character and the performance of the concrete in order to keep a database up-to-date for a best estimation of the shielding during operation and of the radioactive waste volume in the case of decommissioning. The experience and the results of sampling, composition analyses, such as Inductively Coupled Plasma –Optical Emission Spectrometry (ICP-OES), Thermogravimetric Analysis (TGA), and Neutron Activation Analysis (NAA), as well as validations of Monte-Carlo simulations applying the analytical results with the thermal neutron images, taken in the thermal neutron radiography station, NEUTRA, at SINQ PSI, will be presented.

Scientific Topic 1

Scientific Topic 2

Scientific Topic 3

Scientific Topic 4

Shielding and dosimetry

Scientific Topic 5

Induced radioactivity and decommissioning

Scientific Topic 6

Scientific Topic 7

Scientific Topic 8

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Session Classification: Session 5 - Induced Radioactivity

Track Classification: Induced radioactivity and decommissioning