



Contribution ID: 68

Type: **Poster**

Radiation Effects on Various Materials used in Neutron Scattering Facilities

Wednesday, 22 October 2025 14:21 (1 minute)

Over the nearly 20 years of operation of the OPAL reactor and Neutron Beam Instruments a number of materials have been impacted by radiation. This poster will cover the types of materials and what mitigation strategies and tests we have come up with to deal with these challenges.

Materials that have seen damage from radiation include Neutron Guide delamination, Loss of Magnetism in Laser tracker target nests, electronic parts failures and oily residue from cabling in vacuum chambers.

Oily residue in vacuum tanks caused by the cable insulation breakdowns are now well controlled with cold traps.

We began a process of testing some materials in very high radiation fields prior to installation and the results will be presented.

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Session Classification: POSTER SESSION