

# 12th Course - Challenges in Radiation Damage and Radiation Protection during Design and Operation of Accelerator Facilities and Space Missions

Contribution ID: 38

Type: **not specified**

## NPPs - Qualification and Monitoring of LV Cables

*Friday 27 October 2023 11:15 (55 minutes)*

Low voltage cables play a very important role in guaranteeing a safe and effective operating life of the NPPs. Early failure of a low voltage cable could lead to unexpected power stops, lack of communication and, in the worst case, to a nuclear accident. For this reason, nuclear cables are designed and qualified to withstand possible nuclear accidents e.g., loss of coolant accidents (LOCAs).

Depending on their location inside the NPP, these cables are subjected to a wide range of environmental conditions and stresses such as high temperature, radiations, moisture and mechanical stresses. All these stresses contribute to an early degradation of cables. In particular, environmental conditions can be particularly harsh in the reactor containment area, leading to accelerated aging of cable components.

These lectures aim at providing basic concepts on the radiation effects on electrical insulating polymers and how it is possible to monitor the evolution of their properties throughout their application time.

**Presenter:** SURACI, Simone (University of Bologna)