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**NEUTRON SPECTROMETRY IN MIXED FIELDS:
CHARACTERISATION OF THE RA1- REACTOR WORKPLACE**

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Presentation preference: Poster
Only

Major scientific thematic
areas: TA3 - Dosimetry and
Instrumentation

The characterisation of the neutron spectrum of a workplace is an essential dosimetric tool for improving the assessment of the personal equivalent dose of the workers. In addition, if the operational conditions of the facility are well defined, the set of field spectra obtained may be used as a reference for comparing the performance of different type of neutron detectors. Recently, using a neutron spectrometric system based on a set of moderated spheres with ³He detector, the characterisation of the neutron spectra in workplaces of the Argentine Reactor No. 1 (RA-1) has been carried out.

The spectrometric system consists of 12 spheres made of the high-density polyethylene $\delta_{\text{mean}} = 0.95 \text{gcm}^{-3}$, with diameters between 3" and 12 " and a proportional counter of ³He, 4 atm of nominal pressure, Centronic trade mark, located in the centre of the spheres. The neutron response matrix was calculated using the MCNP-IVB code and ENDF/B-VI library in the energy range between thermal neutron and 100 MeV. The neutron spectrum was unfolded using the MAXED unfolding code. The validation of the spectrometric system was performed at CEA-Cadarache (France) with of ²⁵²Cf, AmBe, and ²⁵²Cf + D₂O sources.

Therefore, in this work, the spectral fluence of the field in the selected points of the facility (RA-1) has been presented and the ambient dose equivalent, H*(10), and the personal dose equivalent, Hp(10), have been derived from the neutron fluence, applying ICRP-74 recommended fluence to dose conversion factors. The quantities evaluated have uncertainties less than 15%, which is considered good enough for radiation protection requirements.