Contribution ID: **9** Type: **Poster (preferred)**

DOIN: a novel electronic personal dosemeter for neutrons

Wednesday, 29 May 2024 17:44 (6 minutes)

Electronic personal dosemeters (EPD) are powerful tools for achieving ALARA (As Low As Reasonably Achievable) objectives in operational radiation protection. These offer real-time reading, time-resolved dose recording, alarm threshold settings and visible/audible alarms to prevent accidental exposures. EPD for photons are well developed and their performances usually comply with relevant Standards. By contrast, a very few commercial models exist for neutrons and their energy dependence is too large for using them without preinformation on the workplace neutron spectrum. Within the INFN-based DOIN (DOsimetro Indossabile per Neutroni) project, a new EPD for neutrons was prototyped, owing to a new patented design. The energy variability of the response is limited to about 2 when the energy varies from thermal neutrons up to the quality of 241Am-Be and monoenergetic reference neutron fields. The calibration coefficient is ~10^4 mSv^−1 in terms for H_p (10,0°) for the bare 252Cf source The response is nearly isotropic compared to actual commercial models. Finally, the parasitic photon sensitivity is lower than 2 mSv^−1 in the range 48÷205 keV.

Scientific Topic 1

Scientific Topic 2

Scientific Topic 3

Scientific Topic 4

Shielding and dosimetry

Scientific Topic 5

Scientific Topic 6

Scientific Topic 7

Scientific Topic 8

Primary author: CALAMIDA, Alessandro (Istituto Nazionale di Fisica Nucleare)

Co-authors: CASTRO CAMPOY, Abner Ivan; Ms FONTANILLA, Aixeen (INFN- Sezione Politecnico di Milano); PIETROPAOLO, Antonino; CANTONE, Claudio; DASHDONDOG, Dolzodmaa; RUSSO, Luigi; CABALLERO PACHECO, Miguel Angel; BEDOGNI, Roberto (INFN-LNF); NAPOLITANO, Tommaso

Presenter: CALAMIDA, Alessandro (Istituto Nazionale di Fisica Nucleare)

Session Classification: Poster Session