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**BOOK OF
ABSTRACTS**

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TLD-100 post-irradiation fading characteristics according to IEC 62387:2020 standard

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The results of the post-irradiation fading of whole body dosimeters based on two TLD-100TM (Thermo ScientificTM HarshawTM, USA) detectors are presented. The dosimeters are regularly used by accredited individual monitoring service (IMS) at Vinca Institute of Nuclear Science (VINS), Belgrade, Serbia. The testing of post-irradiation fading was carried out according to International Electrotechnical Commission (IEC) 62387:2020 standard. The irradiations are done in S-Cs¹³⁷ field at secondary standard dosimetry laboratory (SSDL) at VINS, according to International Organization for Standardization document ISO 4037-3:2019. The chosen reference personal dose equivalent value was 3 mSv. The research was carried out in the period from October 2020 to February 2021, and it lasted 128 days. The frequency of irradiations was approximately 7 days, while 3 periods between irradiations were longer than 10 days, due to COVID-19 pandemic. The irradiations were performed at different dates; thus, all dose readouts were done on the same day to prevent influence of reader's instabilities. The irradiated dosimeters were stored at the same room where the average temperature was nearly 20°C. There were 14 groups with 6 dosimeters for irradiation and 2 dosimeters for natural background radiation level correction. The reader was Harshaw TLDTM Model 6600 Plus Automated Reader (Thermo Fisher Scientific, USA). The whole glow curve was used for dose estimation (all of 200 channels). The time as influence quantity was considered to be of type F, thus the range of relative response was limiting factor in the analysis. The results showed that the maximum measurement time t_{max} is 72 days for deep dose ($H_p(10)$) detector, and 85 days for shallow dose ($H_p(0.07)$) detector. Thus, the standard's requirement is satisfied, as it is required minimum of 30 days. The relative response range for all of the 14 groups was from 0.82 to 1.14 and from 0.83 to 1.17, for deep and shallow dose, respectively. The research has limitation as the irradiations were organized aligned to COVID-19 working schedule. One of the consequences of this timetable is lack of 7 days' time point, thus the values from 16 days' time point was used as referential.

