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CHARACTERISATION OF ALUMINA SAMPLES FOR X-RADIATION DOSIMETRY USING THE TSEE TECHNIQUE

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The increasing use of radioactive sources in medicine, industry and research has led to a growth in the number of persons exposed to some kind of ionizing radiation, therefore to the importance of an accurate dosimetry. Thermally stimulated exoelectron emission (TSEE), consisting of low energy electrons that are emitted from surfaces of solids, is a technique that can be used to measure short range particles. The present paper reports on a study which involves the performance testing of exoelectron emitting  $Al_2O_3$  thin films on graphite substrates, in order to verify if they can be used for measuring weakly penetrating radiation, such as low energy X-rays. The experiments were carried out with a windowless proportional counter developed at IPEN with P-10 gas flow. The diameter of the gold anode wire is 50  $\mu$  and the operating high voltage is 1.9 kV. The  $Al_2O_3$  samples were tested in X-radiation beams of 25, 30, 40, 45 and 50 kV (Rigaku Denki System). Results of glow curves, exposure and energy responses, thermal fading and reproducibility of the samples are presented.