

Thermoluminescence energy response of TLD-100 subjected to photon irradiation using Monte Carlo N-particle transport code version 5

ABSTRACT

Useful TL properties of TLD-100 that is an excellent candidate for using in TL dosimetry of ionizing radiation are demonstrated. This study is focused on response of TLD-100 subjected to photon irradiation. The thermoluminescence (TL) response of TLD-100 subject to various photon energy, ranging from 20 keV to 6 MeV, was investigated as energy absorbed in the TL material using Monte Carlo N-Particle transport code version 5 (MCNP5). The input parameters included in this study are experimental geometry specification, source information, material information, and tallies. Tally F6 is used in this simulation. The results from MCNP5 simulation show good agreement with previous experimental data. However, the data obtained from the simulation are greater than the experimental data especially in lower energy ranges.