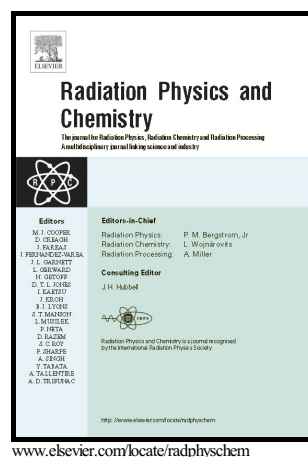


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Neutron dose estimation in a Zero Power Nuclear Reactor

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Abstract

This work presents the characterization and contribution of neutron and gamma components to the absorbed dose in a zero power nuclear reactor. A dosimetric method based on Fricke gel was implemented to evaluate the separation between dose components in the mixed field. The validation of this proposed method was performed by means of direct measurements of neutron flux in different positions using Au and Mg-Ni activation foils. Monte Carlo simulations were conversely performed using the MCNP main code with a dedicated subroutine to incorporate the exact complete geometry of the nuclear reactor facility. Once nuclear fuel elements were defined, the simulations computed the different contributions to the absorbed dose in specific positions inside the core. Thermal/epithermal contributions of

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