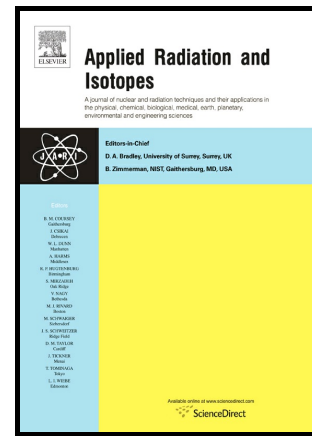


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Few groups neutron spectra, and dosimetric, features, of isotopic neutron sources

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Abstract:

Using Monte Carlo methods, the neutron spectra in 31 energy groups of several isotopic neutron sources were estimated. For each source the neutron mean energy; the Ambient dose equivalent, the Personal dose equivalent and the Effective dose per unit fluence rate were calculated. A convenient way to produce neutrons is the isotopic neutron source, where the production is through (α, n) , (γ, n) , and spontaneous fission reactions. Isotopic neutron sources are small, easy to handle, and have a relative low cost. On the other hand the neutron yield is small and mostly of them produces neutrons with a wide energy distribution. In this work, the main features of $^{24}\text{NaBe}$, $^{24}\text{NaD}_2\text{O}$, $^{116}\text{InBe}$, $^{140}\text{LaBe}$, $^{238}\text{PuLi}$, $^{239}\text{PuBe}$, ^{241}AmB , $^{241}\text{AmBe}$, ^{241}AmF , $^{241}\text{AmLi}$, $^{242}\text{CmBe}$, $^{210}\text{PoBe}$, $^{226}\text{RaBe}$, ^{252}Cf and $^{252}\text{Cf/D}_2\text{O}$ isotopic neutron source are also compiled.

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