fornecidos a um número grande de usuários. Uma desvantagem deste método é o fato de não representar a radiação de fundo de cada pastilha TLD, que pode variar significativamente de uma para outra, e, portanto, aumentar a incerteza do valor da dose atribuída. O outro método de análise utilizado consiste na utilização de programas de análise das curvas de luminescência desses materiais. Este processo apesar de ser mais lento poderia melhorar o desempenho do sistema dosimétrico. No presente trabalho os dois métodos mencionados foram comparados para uma série de testes de desempenho a que os dosímetros foram submetidos de modo a caracterizá-los para emprego na rotina de um laboratório de dosimetria. Os testes realizados incluíram, entre outros, a determinação da reprodutibilidade da resposta, limites de detectabilidade, inferior e superior, dependência energética e angular, etc. Os resultados obtidos indicam os pontos em que uma análise computacional mais rigorosa pode melhorar o desempenho de um sistema dosimétrico deste tipo.

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RESPONSE FUNCTION OF PHOTON DETECTORS FROM 10 keV UP TO A FEW MeV

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The precise knowledge of the response function of ionizing radiation detectors finds use in many areas of research and routine work, at various energy ranges.The production of a reliable response function may follow a mixed path, where physics is used where convenient, but empirical relations may sometimes substitute cumbersome expressions and integrals, for the sake of reducing the computation times. This work is an extension of a previous one, for lower photon energies (up to 120 keV)[1], where the authors have described the response function of a planar Ge x ray detector. This work provides a response for various types and sizes of Ge detectors and a couple of simple detection geometries.

We have measured the spectra of several calibration sources, ^{56}Co, ^{60}Co, ^{109}Cd, ^{133}Ba, ^{137}Cs, ^{152}Eu, and ^{163}Ho. The detectors used were two coaxial Ge gamma-ray detectors of 45- and 89-cm^3 active volume, two planar Ge x-ray detectors of 8- and 5-cm^3 active volume and a planar Si(Li) detector. Three source-to-detector distances were used, their values depending on the detector type, and the measurements were done for two shielding conditions: no shielding and a 10-cm thick iron shield. The integration constants of the spectroscopy amplifier were also let vary, three values being used: 2, 3 and 6 μs. The response function designed has various important features described: photoelectric effect; Compton effect, single and multiple; scattering in the neighborhood (backscattering); Ge-x ray-, single- and double-escape peaks; incomplete charge collection effects and Compton effect of the escaping annihilation photon(s). These effects are described following the path of the previous work, with a few improvements, *e.g.* the multiple Compton effect is described up to three interactions, and their shapes as a function of the energy, originally given in integral form [2], are exactly solved, producing an analytical expression.

[1] J.Y.Zevallos-Chávez *et al.*, accepted for publication in Nucl. Instr. and Meth., 2000.
[2] C. Lee Myung *et al.*, Nucl. Instr. and Meth. A 262 (1987) 430.

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Data Acquisition System for Resistive Detectors

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Gaseous detectors that use high resistivity materials as electrodes have been studied with significant progress in the last decades as well succeeded resistive plate chambers (RPC) and Microgap Gaseous Chambers. The greatest interest for this kind of detectors is the fact that they allow the use of high tensions without the risk of disruptive discharges, producing excelent temporal and spatial resolutions and the possibility of construction, at low cost, of large detection areas with relative facility of use. With this characteristics, these counters are useful in many high