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**Investigation of photon shielding performances of some selected alloys by experimental data, theoretical and MCNPX code in the energy range of 81 keV-1333 keV**

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**Abstract**

The aim of this experimental study is to figure out the photon shielding performance of four alloys sample (Ag92.5/Cu7.5, Ag72/Cu28, Pd94/Cr6 and Pd60/Cu40). For this purpose, the shielding ability of these alloys against fourteen photon energies (in the energy range of 81-1333 keV) using six gamma-ray sources (<sup>22</sup>Na, <sup>54</sup>Mn, <sup>57</sup>Co, <sup>60</sup>Co, <sup>133</sup>Ba and <sup>137</sup>Cs) was measured and compared with the results obtained by WinXCOM and MCNPX code. The results showed that the measured mass attenuation coefficient values for the four alloys coincide with those calculated by WinXCOM and MCNPX at all energies. The Ag92.5/Cu7.5 sample possesses the highest values of mass attenuation coefficient and effective atomic number. The tendency of the effective conductivity versus photon energy was found as the same as the electron density.

**Keywords:** Alloy; Shielding; MCNPX; Photon; Mass attenuation coefficients

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