

Application of EGS4 to intensity monitor development for synchrotron radiation at
SPring-8

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Synchrotron radiation is a high-intense low-energy photon beam. The in-situ absolute intensity measurement is important for various experiments. Such a special beam, however, had not been available and the monitors had to be developed. At SPring-8, we have developed a parallel-plate free-air ionization chamber for photons up to 150 keV from a bending magnet and the uncertainty within 3% was confirmed. At undulator beamlines, a small free-air ionization chamber with 4.2-mm plate separation was developed and the availability was confirmed for 8-10 keV photons up to 4×10^{13} photons/s. Moreover, a graphite-wall ionization chamber, a vacuum chamber and gas-scintillation detectors using Ar, Ne and N₂ were developed for the intense beam. A Monte-Carlo code EGS4 was used for the detector designs with energy deposition calculations considering linear polarization. In this presentation, comparison between the calculations and measurements for the detectors will be shown.