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MeV- and Sub-MeV-photon Sources Based on Compton

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摘要 Recently we have constructed two facilities for generating photon beams in the MeV and sub-MeV energy regions by means of the Compton backscattering with a laser and an electron beam at SPring-8 and at Kansai Photon Science Institute of Japan Atomic Energy Agency (KPSI-JAEA). The MeV-photon source at SPring-8 consists of a continuous-wave optically-pumped far-infrared laser with a wavelength of 118.8 μm and an 8 GeV stored electron beam. Present MeV-photon flux is estimated to be 1.3×10^3 photons/s. On the other hand, the sub-MeV-photon source at KPSI-JAEA consists of a pulse Nd:YAG laser with a wavelength of 1064 nm and a 150 MeV electron beam accelerated by microtron. In the first trial of the photon production in this source, backscattered photon flux is estimated to be 20 photons/pulse. Both the Compton backscattered photon sources have possibilities to be used for new tools in various fields such as nuclear physics, materials science, and astronomy.

关键词

[laser Compton backscattering](#) [polarized \$\gamma\$ -ray](#) [polarized X-ray](#)

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