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Experiments on Polarization Control of Thomson Scattering X/γ-ray Source

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Thomson scattering of intense laser pulses from relativistic electrons can generate high-brightness and tunable-polarization X/γ-ray pulses. In this paper, we demonstrate an experiment about the polarization control of the Thomson scattering source. The polarization of X/γ-ray relates to the incident polarized laser beams, which is controlled by rotating a wave plate. In this experiment, the polarization of X-ray is determined by recording the spatial distribution of scattered photons, produced by antarget radiated by the X-ray pulse. According to modulation curves analyzed from experiment results, the conclusion is that the polarization of Thomson scattering source is tunable and controllable.

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