



Induced Compton scattering experiment with J-KAREN-P laser

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Induced Compton scattering (ICS) is a nonlinear interaction of photons and electrons and is believed to be one of the important processes constraining physical conditions of some astrophysical phenomena, such as pulsars and fast radio bursts [1]. It is predicted that, unlike spontaneous Compton scattering, the scattered radiation off ICS shows characteristic spectral signatures [2] and it is shown that the characteristic spectral signature of ICS can be experimentally observed in laboratory by using the up-to-date laser facilities [3]. Here, we report some results of the first experiment of the ICS signature observation. The experimental observation is conducted in December 2020 with J-KAREN-P laser at National Institutes for Quantum and Radiological Science and Technology in Japan [4]. We

observed the spectra of the incident and scattered radiation, and the characteristic spectral signature is expected on the spectra of the scattered radiation. So far, we do not clearly detect the expected signature and we will discuss the obtained results.

References

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