

## Physics &gt; Instrumentation and Detectors

# Photon generation by laser-Compton scattering at the KEK-ATF

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We performed a photon generation experiment by laser-Compton scattering at the KEK-ATF, aiming to develop a Compton based polarized positron source for linear colliders. In the experiment, laser pulses with a 357 MHz repetition rate were accumulated and their power was enhanced by up to 250 times in the Fabry-Perot optical resonant cavity. We succeeded in synchronizing the laser pulses and colliding them with the 1.3 GeV electron beam in the ATF ring while maintaining the laser pulse accumulation in the cavity. As a result, we observed 26.0 +/- 0.1 photons per electron-laser pulse crossing, which corresponds to a yield of  $10^8$  photons in a second.

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