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## Initial status report on BNL ATF AE131 experiment harmonic nonlinear inverse Compton scattering

*Tuesday, 21 May 2024 16:00 (2 hours)*

Recent progress of basic study on Harmonic nonlinear Compton scattering in Brookhaven National Laboratory Accelerator Test Facility (BNL ATF) will be reported. Experiment is conducted by counter collision of a multi TW CO<sub>2</sub> laser and 60-70 MeV electron beam having 300-600 pC of charge per pulse. Experiment AE131 is intended for two aspects of experimental demonstrations. A: Nonlinear bi harmonic effect seen in external lasers having shorter wavelength such as Nd:YAG laser induced by a long wavelength intense CO<sub>2</sub> laser at scattered photon energy of 100 keV range. B: Detailed study on the harmonic radiation induced by circularly polarized multi TW CO<sub>2</sub> laser which potentially contain the Orbital Angular Momentum at photon energy of 10 keV range.

### Footnotes

### Funding Agency

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### Paper preparation format

Word

### Region represented

North America

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