Contribution ID: **1484** Contribution code: **THPB090** Type: **Poster Presentation**

Accelerator test facility upgrades to enable further advancements in the science and technology of accelerators

Thursday 5 June 2025 15:30 (2 hours)

The Accelerator Test Facility* (ATF) is the DoE Office of Science User Facility aimed to provide users with a high brightness electron beam, near-infrared (NIR), and long-wave infrared (LWIR) laser beams. The unique capabilities at the ATF include the possibility to combine the electron beam with synchronized high-power laser beams.
It is planned to upgrade the facility to have enhanced capabilities. They will include: an increased electron beam energy from the present 65-70 MeV to 110-120 MeV; a reduced by a factor of about 10 phase jitter; and an improved - to femtoseconds'scale - time synchronization between the electron beam and the laser beams. To accomplish these tasks, the ATF will design and deploy a new High Level RF System, a new Low Level RF System, and a new Time Distribution System. In addition, the ATF will change the Power Plant for the quadrupole and correction magnets to increase operations'reliability. It is expected that the planning stage will be completed in about 3 years, and the actual hardware deployment will be finished after that in the next 2 years. Different upgrade options are being investigated now and are described in the presented article.

Footnotes

- https://www.bnl.gov/atf/

Paper preparation format

Region represented

America

Funding Agency

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Session Classification: Thursday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T31 Subsystems, Technology and Components, Other