

Fermilab Accelerator Science and Technology (FAST) facility

The Fermilab Accelerator Science and Technology (FAST) facility's mission is to enable a broad range of beam-based experiments to study fundamental limitations to charged particle beam intensity and to develop transformative approaches to particle-beam generation, acceleration and manipulation. It is fully-equipped to support R&D for the next generation of particle accelerators and incorporates a 40-m circumference Integrable Optics Test Accelerator (IOTA) storage ring with the capability of storing either electrons or protons with upto 150 MeV/c momentum and its two injector accelerators : 150-300 MeV photoinjector-based superconducting RF linear accelerator of electrons and 2.5 MeV RFQ accelerator of protons (H+) from a duo-plasmatron source. The electron injector employs one 1300 MHz ILC-type cryomodule powered by a 10 MW klystron, modulator, and a RF power distribution system and allows tests with up to 5 Hz repetition-rate and one of the highest peak and average brightness beams within the U.S. Both electron and proton injectors can be augmented with additional beam lines, dumps, and test areas to support user research and tests beyond those on the integrable optics and space-charge compensation envisioned in the IOTA ring.

The facility provides 20 MeV electron beams since 2015, 50 MeV electrons since Spring 2016 and is scheduled to inject 150 MeV electron into the IOTA ring early FY17 that will be followed by the start up of a multi-year accelerator science research program. Commissioning of the proton injection to IOTA will begin in FY18. For more information see: <http://fast.fnal.gov/> or contact Vladimir Shiltsev (AD/APC) shiltsev@fnal.gov

