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SLAC End Station A Test Beams (ESTB) for MDI and Beam Instrumentation Experiments

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End Station A Test Beam (ESTB) is a beam line at SLAC using a small fraction of the bunches of the 13.6 GeV electron beam from the Linac Coherent Light Source (LCLS), restoring test beam capabilities in the large End Station A (ESA) experimental hall. ESTB will provide one of a kind test beam essential for developing accelerator instrumentation and accelerator R&D, performing particle and particle astrophysics detector research, linear collider machine and detector interface (MDI) R&D studies, development of radiation-hard detectors, and material damage studies with several distinctive features. To measure wakefields generated by beam collimators, we are planning to install new rf beam position monitors with resolution 100 nm and an electro-optic device for critical bunch length measurements. Beam energy measurements aiming at an accuracy of 100-200 parts per million (ppm) also call for BPMs with highest resolution, next-generation synchrotron stripe detector and new instrumentation to improve stability.

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