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A high brightness electron beam research and application beamline at Tsinghua University

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In this paper we report on the status and performance of a newly commissioned high brightness electron beamline at Tsinghua University. The beamline is dedicated to research on the physics and technologies of multi-MeV, low charge, high brightness electron beams, as well as applications including MeV ultrafast electron diffraction and imaging. The layout, simulation and measurement results of the beam parameters and the stability performance of the beamline will be discussed. A liquid-phase UED sample delivery system and experiment methodology have recently been commissioned and established. Near-term upgrade to a variety of key components, including the high power rf source, laser-to-rf timing system, electro-optic lenses, together with the modeled performance improvements will also be presented.

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