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The FORTRESS Beamline at Tsinghua University

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High-brightness photoinjectors generate low emittance, ultrashort electron beams that are capable of tracking dynamical states of matter with atomic-scale spatio-temporal resolutions via ultrafast electron scattering, as well as providing precisely-shaped electron beams for advanced acceleration research and large-scale facilities such as free-electron laser and inverse Compton scattering. In this paper, we report on the status of the newly constructed FORTRESS (Facility Of Relativistic Time-Resolved Electron Source and Scattering) beamline at Tsinghua University, which will be dedicated for studies of advanced electron sources and photocathodes, new electron beam manipulation and characterization methods, and ultrafast electron scattering applications. The layout, beam dynamics simulation, initial beam measurement results, as well as main hardware components will be discussed in detail.

Footnotes

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Primary authors: LV, Peng (Tsinghua University in Beijing); LI, Renkai (Tsinghua University in Beijing)

Co-authors: WANG, Zhiyuan (Tsinghua University in Beijing); YANG, Yining (Tsinghua University in Beijing); WANG, Yian (Tsinghua University in Beijing); HUANG, Bo (Tsinghua University); GAO, Qiang (Tsinghua University in Beijing); JIA, Yanqing (Tsinghua University in Beijing); SONG, Baiting (Tsinghua University in Beijing); TIAN, Qili (Tsinghua University in Beijing); QIN, YuanYuan (Tsinghua University in Beijing); YUN, Longteng (Tsinghua University in Beijing); CHEN, Keke (Tsinghua University in Beijing); SHI, Jiaru (Tsinghua University in Beijing); YAN, Lixin (Tsinghua University in Beijing); YANG, Jie (Tsinghua University in Beijing); DU, Yingchao (Tsinghua University in Beijing); HUANG, Wenhui (Tsinghua University in Beijing); TANG, Chuanxiang (Tsinghua University in Beijing)

Presenter: LV, Peng (Tsinghua University in Beijing)

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