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Diagnostic beamline for the superconducting RF photoinjector test stand at DESY

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For future continuous wave (CW) and High-Duty-Cycle operation of the European XFEL, research and development of the DESY L-band CW photo injector is ongoing. Presently, the implementation of a superconducting radio frequency (SRF) gun operated at 1.3 GHz with a copper photocathode is the baseline solution. The electron beam quality, in particular the slice emittance, produced by this injector is key for the successful operation of the free-electron laser. In order to study the achievable beam quality and stability of operation, a dedicated test stand and diagnostic beamline is being developed at DESY. Here, we present an overview of the foreseen diagnostic components and methods at the SRF CW photoinjector test stand.

Footnotes

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