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Longitudinal Beam Dynamics Optimization for Infrared Terahertz FEL LINAC

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The high-repetition-rate infrared terahertz free-electron laser (IR-THz FEL) facility are progressing in the preliminary research stage, which can achieve the demand for a tunable, high-power-light source in the long wavelength spectrum and form a complementary structure of advantages with the Hefei Advanced Light Facility (HALF). In this paper, we present the design of a bunch compressor which can compress the bunch length to reach the peak current of 118 A. We also present an approach to optimize the RF parameters for the accelerating modules, which makes it feasible to generate a high-quality beam bunch that can reach the requirements for future FEL applications.

Footnotes

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