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Numerical simulation of an electron beam for magnetic bunch compressor commissioning at PITZ

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A THz free electron laser (FEL) prototype has been developed at the Photo Injector Test Facility at DESY in Zeuthen (PITZ) for obtaining high intensity radiation for THz-pump-X-ray-probe experiments at the European XFEL. In this development, a magnetic chicane was recently installed to optimize the THz FEL performance. The aim of this study was to investigate the beam dynamics in the chicane for a trajectory commissioning by tracking the electron beam via ASTRA using a 3-dimensional magnetic field of the chicane simulated with CST-EM Studio. The simulated results indicate the possibility of obtaining on-axis trajectory and zero-momentum dispersion of the compressed beam.

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Footnotes

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Yes

Primary author: Mr KONGMON, Ekkachai (Chiang Mai University)

Co-authors: AFTAB, Namra (Deutsches Elektronen-Synchrotron DESY at Zeuthen); BOONPORNPRASERT, Prach (Deutsches Elektronen-Synchrotron DESY at Zeuthen); GROSS, Matthias (Deutsches Elektronen-Synchrotron DESY at Zeuthen); KRASILNIKOV, Mikhail (Deutsches Elektronen-Synchrotron DESY at Zeuthen); LI, Xiangkun (Deutsches Elektronen-Synchrotron DESY at Zeuthen); LUEANGARAMWONG, Anusorn (Diamond Light Source Ltd); OPPELT, Anne (Deutsches Elektronen-Synchrotron DESY at Zeuthen); RICHARD, Christopher (Deutsches Elektronen-Synchrotron DESY at Zeuthen); RIMJAEM, Sakhorn (Chiang Mai University); STEPHAN, Frank (Deutsches Elektronen-Synchrotron DESY at Zeuthen); VASHCHENKO, Grygorii (Deutsches Elektronen-Synchrotron)

Presenter: Mr KONGMON, Ekkachai (Chiang Mai University)

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