

Electron bunch shaping by laser heater for reduced XFEL pulse duration

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The pulse duration of the X-ray free-electron laser (XFEL) relies on the pulse duration of the electron bunch. The energy distribution of the electron bunch can be manipulated by using the laser heater in the purpose of generating attosecond pulse duration electron bunch current profile. Therefore, the resultant electron bunch current profile after the bunch compressor chicane is programmable by the laser parameters. We performed the electron bunch shaping by using the laser heater and observed the resultant FEL signal at PAL-XFEL Soft X-ray beamline. The experimental results are compared with the ELEGANT and GENESIS simulation results for elucidating the physical features.

Paper submission Plan

No

Best Presentation

No

Contribution track

ICABU WG2. Beam Physics, Diagnostics & Novel Techniques

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