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A longitudinal phase space measurement using the dechirper composed of corrugated metallic at PAL-XFEL

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We present the experimental results of the longitudinal phase space measurement using the well-known wakefield deflector driven by the dechirper. When the electron bunch travels through the dechirper, electrons at the head of bunch generate the strong transverse wakefield which forces the trailing electrons to be transversely streaked. In such a way, the temporal structure of bunch can be reconstructed by analyzing the distribution of transverse profile at the downstream of dechirper. In the soft X-ray line of the PAL-XFEL (Pohang Accelerator Laboratory, X-ray Free Electron Laser), the dechirper composed of 1.4-meter-long corrugated metallic walls streaks the bunch horizontally via the wakefield. By combining with the bending magnet having the vertical dispersion, the longitudinal phase space of electron beam can be interpreted as the spatial distribution at the screen monitor. We show the results of the longitudinal phase space measurement using the wakefield deflector.

Footnotes

Funding Agency

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Yes

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