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Radiation transport line for Terahertz Coherent Diffraction Radiation at ERL Test Accelerator in KEK

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cERL in KEK is a test accelerator for development works of technologies related to Energy Recovery Linac (ERL) and CW-Superconducting accelerators. It can produce a low emittance and short bunch beam at a high repetition rate. This feature is suitable for producing a high average power terahertz (THz) coherent radiation. We have been developing a THz source based on Coherent Diffraction Radiation (CDR) at the straight section of cERL. In the scheme, a short bunch electron beam passing through a metal target with a small hole emits coherent radiation. We have built a THz transport system from the source to an experiment station at outside of the accelerator shielding.

The unique higher-order mode transverse profile of CDR has been confirmed at the experiment station. We will report the design and tuning procedure of the THz transport optics in beam experiments.

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JSPS KAKENHI

Footnotes

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Yes

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