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# Beam tracking simulation of the capture linac for the ILC e-driven positron source

*Monday 2 June 2025 16:00 (2 hours)*

In the electron-driven positron source of the International Linear Collider (ILC), positrons are generated through electromagnetic showers by irradiating a target with a 3 GeV electron beam and then accelerated in a positron capture linac in a solenoid magnetic field. Because of the high current multi-bunch beam requirements of ILC, the beam loading effect is one of the important issues. In order to identify engineering issues, a test bench has been set up at the KEK-STF to build and test prototypes of a target system, a flux concentrator, an accelerating tube and a solenoid coil. Based on this test bench arrangement, a beam tracking simulation of the positron source from target to the upstream of the capture linac has been started by PIC simulation using the commercial code CST studio. In this contribution, the results of beam tracking simulation with the realistic magnetic field, accelerating field and placements of components and the effects of beam loading on beam energy and yield will be reported.

## Footnotes

## Paper preparation format

Word

## Region represented

Asia

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