



Contribution ID: 125

Type: Oral presentation using Zoom

A tapered pulsed solenoid as optical matching device for the undulator-based ILC positron source

Wednesday, 27 October 2021 22:30 (30 minutes)

Future high energy colliders like the ILC require high intensity positron beams to achieve their targeted high luminosities. The intensity of positron beams is partially defined by the amount of positrons that can be provided by the positron source, which arises from the amount of originally produced positrons and the fraction that can be captured and transported, the so-called yield. In current positron source designs devices like the flux concentrator and the quarter wave transformer are used to match the positrons which are extracted from the positron target into the first accelerating structure. As these conventional devices exhibit a limited positron yield and pose high challenges on the target design due to the large forces and eddy currents that they induce on it, alternative matching devices are under investigation. In this contribution we present conceptual studies of a tapered, pulsed solenoid as matching device for the ILC positron source. The principal setup, simulated positron yield and heat load on the target, as well as approaches on how to improve them are discussed.

1st preferred time slot for your oral presentation

15:30-17:30 JST (8:30-10:30 CEST, 2:30-4:30 EDT, 23:30-1:30 PDT)

2nd preferred time slot for your oral presentation

19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)

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Session Classification: R-1: Machine - Sources

Track Classification: Parallel sessions: Accelerators: Session R: Machine - Sources