

Contribution submission to the conference Dortmund 2021

The challenge and prospect of a plasma lens for the capture section of e^+ sources in modern accelerator designs — ●MANUEL FORMELA¹, GUDRID MOORTGAT-PICK¹, KLAUS FLOETTMANN², and NICLAS HAMANN¹ — ¹Universität Hamburg — ²DESY

The ILC is an ambitious international collaboration with its positron source especially being at the forefront of pushing technological boundaries. Part of this enterprise has to be the optical matching device responsible for catching positrons exiting a target and transforming them from a highly divergent beam with a small effective cross-section to a wide, parallel beam to be appropriate for the succeeding accelerator section. This problem has been approached by different types of sophisticated coils like the quarter wave transformer and flux concentrator for many years now. Today considerations exist to utilize a completely new principle based on an electric current passing a plasma. This so called plasma lens creates a magnetic field, which is potentially especially qualified for the usage as an optical matching device due to its pronounced azimuthal component in contrast to the radial component of conventional devices.

Part: AKBP
Type: Vortrag;Talk
Topic: New Accelerator Concepts
Email: manuel.formela@gmail.com