

Contribution submission to the conference Heidelberg 2022

A new high rate electron beam line at DESY II — ●DOHUN KIM — DESY, Notkestraße 85, 22607 Hamburg

The R-Weg is a former transfer beam line from the DESY II synchrotron to DORIS. Recently, it has been refurbished to serve as a high-rate electron beam line. The full DESY II beam with up to several $10^{10}e^-$ can be dumped at a rate of 12.5 Hz. The available rates allow many detector tests that require high particle rates, but this also allows to use the beam line as a facility for electron irradiation.

Before the R-Weg is put into full operation, it is necessary to understand the beam parameters and the radiation field in detail. Therefore, the R-Weg has been simulated and studied using FLUKA, which is a MC simulation framework for the interaction and transport of particles in materials.

The beam divergence, stability, beam profile etc. have been simulated. To verify the results, a suite of measurements has been prepared and compared. In addition, the neutron and gamma background from the beam dump are studied to ensure safe operation and to enable the use as a electron irradiation facility.

This presentation is going to explain details of the R-Weg and present the simulation result. Finally, an outlook into future measurements at the R-Weg is given.

Part: T
Type: Vortrag;Talk
Topic: 3.04 Halbleiterdetektoren: Strahlenhärte, neue Materialien und Konzepte; 3.04 Semiconductor Detectors: Radiation Hardness, new Materials and Concepts
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