

12th Beam Telescopes and Test Beams Workshop



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PRIMA : A New High-Intensity Electron Beamline at DESY II

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The PRIMary-beam test Area (PRIMA), formerly an extraction beamline from the DESY II synchrotron to DORIS, is currently being commissioned to serve as a high-rate electron beamline. By utilizing electrons in DESY II that would not have been by PETRA III, a synchrotron radiation facility, and just dumped, the full DESY II beam with up to 3×10^{10} electrons per bunch can be available for detector testing and irradiation campaigns.

To ensure a safe and controlled operation, it is necessary to understand the beam parameters and radiation field in detail. Therefore, the PRIMA irradiation environment has been studied using a Monte Carlo simulation framework for the interaction and transport of particles in materials: FLUKA. Using FLUKA the radiation background, neutrons and gammas generated from electron interactions with materials present in the facility, has been simulated and is being verified by measurement. In addition, beam instabilities during extraction have been taken into account.

We will provide an overview of recent simulation and measurement progress and showcase opportunities for future usage.

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