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Design and implementation of an optical diagnostic beamline at the BESSY II injection line

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In order to improve and extend the current diagnostic system of the third-generation synchrotron radiation source BESSY II, a source point imaging system is being developed. This paper presents the conceptual design, including technical requirements, simulation results, and expectations for the optical transport line and mechanical integration. The design aims to ensure beam quality during operation using synchrotron radiation emitted from the dipole magnet. The primary components of this beamline are a CCD camera and a lens system. To enable precise positioning of the achromat, the system is equipped with a motorized linear feedthrough. The entire setup is designed to operate under high vacuum conditions. A basic existing setup is employed to experimentally validate the simulation results, using the same CCD camera as in the final beamline setup.

Footnotes

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