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## An optical diagnostic beamline for the BESSY II Booster

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As part of the global refurbishment of the injector at BESSY II, a new optical beamline has been installed in the booster. We report on the conceptual design: incorporating the beamline into an operational facility without downtime, the simulation and expectations of the optical transport line, mechanical installation and commissioning with beam. These first results with the present beam delivery system have already achieved source point imaging and bunch length measurements using a fast diode. With the additional PETRA cavity installed for this booster upgrade and connection to acquire RF power in the 2022 summer shutdown planned, the bunch length diagnostics are critical. The beamline will also undergo a final mechanical upgrade and then see the installation of a streak camera.

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