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Development and characterisation of non-invasive diagnostics for plasma acceleration

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FLASHForward is a beam-driven plasma wakefield accelerator located at DESY in Hamburg. Within the FLASHForward project, a laser-driven wakefield setup is used as testbed for the characterisation and development of diagnostics for plasma wakefield accelerators. These include different non-invasive charge diagnostics that are also tested for their usability in EMP noisy plasma environment. Another method investigated is Thomson Scattering, which is the interaction of relativistic electron bunches with a laser pulse resulting in X-ray beams. Results on using the dependence of the Thomson beam on the initial electron bunch parameters to study the electron bunches are presented.

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