

# 11th Beam Telescopes and Test Beams Workshop



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## ElectronCT - Imaging using Low-Emittance Electron Beams

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Recent developments in accelerator technologies have led to an increasing interest in electron accelerators for the purpose of radiation therapy. In the context of FLASH radiotherapy, collimated electron beams with a kinetic energy in the order of 50 to 250 MeV are utilized with the prospect of reducing the damage to healthy tissue with respect to conventional electron radiotherapy.

This energy range at the same time allows for utilizing the electron beam for the purpose of imaging by exploiting the effect of multiple Coulomb scattering of charged particles in matter. The low dose deposited by such a beam renders this method a promising technique for medical imaging and could lead to synergies of therapy and diagnostics.

In this contribution, we present an imaging technique called electronCT, enabling two- and three-dimensional imaging by detecting the scattering power of electrons traversing a sample, applying silicon pixel detectors. This presentation comprises an overview over the technique and the experimental setup, simulation strategies as well as first results applying this measurement technique at the ARES linear accelerator at DESY.

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