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Compact electro-optical bunch length detector: from an expert device to an operator tool

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Laser-based electro-optic detection (EOD) has been a valuable tool to measure the longitudinal electron bunch shape with sub-ps resolution for almost a decade, but it has always been a tool for expert use. Recently, the server and the user interface has been updated allow automated laser locking, time calibration and measurements to prepare for general operator use at the EuXFEL. It is currently prepared for EO Spectral Decoding measurements, but the implementation of advanced reconstruction algorithms (Diversity Enhanced EO Spectral Decoding, DEOS[*]) is ongoing. The paper presents details of the setup and the user interface as well as recent measurements.

Footnotes

[*] Phase Diversity Electro-optic Sampling: A new approach to single-shot terahertz waveform recording, E. Roussel et al., Light: Science & Applications, 11, 14 (2022)

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I have read and accept the Conference Policies

Yes

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