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Electro-Optical Diagnostics at KARA

Electro-optical (EO) methods are well-proven diagnostic tools, which are utilized to detect THz fields in countless experiments. The world's first near-field EO sampling monitor at an electron storage ring was developed and installed at the KIT storage ring KARA (Karlsruhe Research Accelerator) and optimized to detect longitudinal bunch profiles. This experiment with other diagnostic techniques builds a distributed, synchronized sensor network to gain comprehensive data about the phase-space of electron bunches as well as the produced coherent synchrotron radiation (CSR). Furthermore, a far-field EO setup to measure the THz spectrum of the CSR in single-shot is currently implemented. In this contribution, we will give an overview of current EO activities at KARA.

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