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## **Studies towards an electro-optical longitudinal bunch profile monitor for FCC-ee based on the setup at KARA**

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The Karlsruhe Research Accelerator (KARA) at KIT was the first synchrotron to successfully implement near-field electro-optical (EO) beam diagnostics to conduct turn-by-turn bunch profile measurements. In the scope of the FCC Innovation Study (FCCIS), this beam diagnostics concept is under investigation as a tool for the future electron-positron collider FCC-ee to measure center-of-charge and longitudinal profile of the electron bunches.

This contribution provides an overview on the opportunities and challenges of EO beam diagnostics for FCC-ee based on simulations and experiences at KARA.

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