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## Bunch length measurement studies using Cherenkov Diffraction radiation

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The beam parameters of FCC-ee with its high-intensity beams and large dynamic range lead to exceptional requirements for beam instrumentation devices. For high energy lepton machines, the detection of synchrotron radiation for the measurement of bunch length has been common practice in the past. However, given the exceptional size of FCC-ee, extracting synchrotron light comes with technical challenges and restrictions. Therefore, we propose the usage of Cherenkov Diffraction Radiation (ChDR) as an alternative radiation source for sampling the longitudinal profile of FCC-ee bunches. In this talk, the most recent simulation results for the utilization of ChDR are shown, which include different analytical as well as numerical studies. We will also present plans for experimental studies on coherent and incoherent ChDR.

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