



SuperKEKB Lumibellell Plots

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Introduction

- ▶ Working on luminosity measurement studies for the Future Circular Collider (FCC)
- ▶ Use monitors to maintain steady luminosity and measure variation
- ▶ Use this signal to feedback on beam
- ▶ Ultimate goal: IP feedback mechanism

- ▶ SuperKEKB data from Autumn 2024
- ▶ Directory with 56 days of data
- ▶ Directory includes the following root files: TIL, BIL, BunchCurrent and simple_all_PV_1Hz_

System Setup

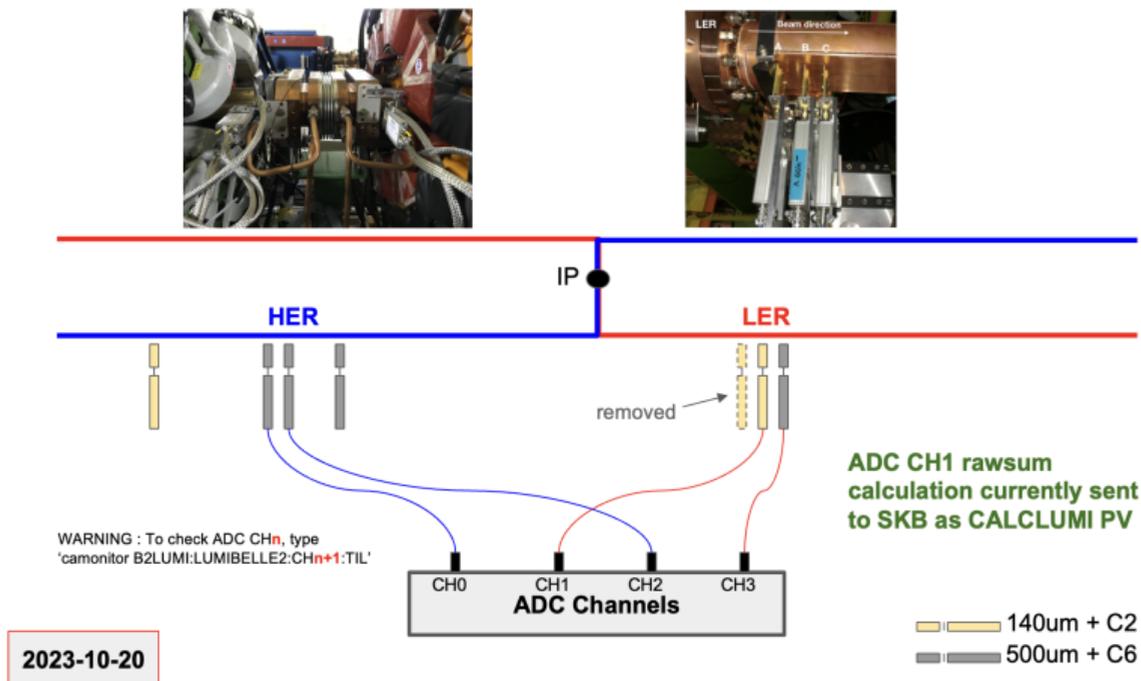


Figure 1: System Setup 2023-10-20

TIL2 & TIL4 Signal

- ▶ CH2 (thin, 140 μm + C2, near IP) vs CH4 (thick, 500 μm + C6)
- ▶ CIVIDEC C2: Wide bandwidth (2 GHz) voltage amplifier - fast signals and long cable transmission
- ▶ CIVIDEC C6: Low-noise charge-sensitive amplifier with 40 ns shaping time for charge integration

CH2 vs CH4 RAWSUM Correlation (TIL6)

