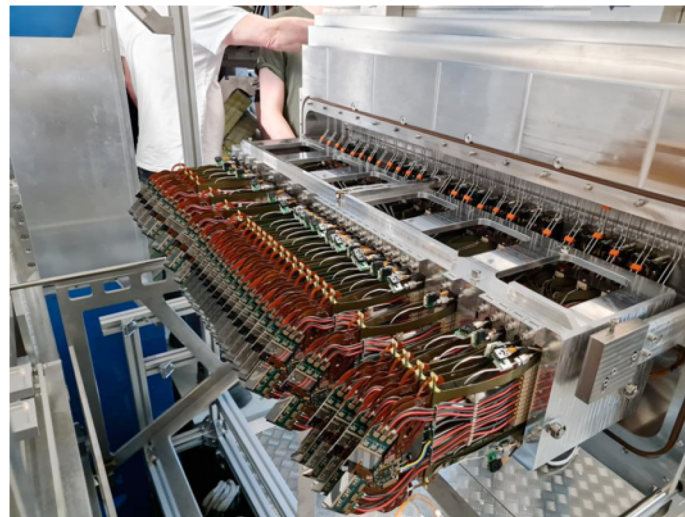# Vertex detector calibration with first run-3 data

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The 'upgraded' Velo

- in two weeks, final installation of new vertex detector for LHCb!

- part of a major upgrade of the LHCb detector for 'run 3 and beyond'
  - go to about 7x larger interaction rate
  - improve performance in key areas (resolution, background rejection)

Vertex detector studies

- in order to get the best out of new detector, need detailed calibrations and studies of performance

- in this project

  - perform the `spatial alignment' of vertex detector using the first data from LHC run 3

  - use Ks -> ππ and Ψ -> μμ decays to compare performance to simulated data

  - where needed, improve the calibration algorithms and simulation

  - physics: measure the Ks -> ππ lifetime to show that we understand the detector