Contribution ID: **625** Type: **Poster**

# Scintillating sampling ECAL technology for the LHCb PicoCal

*Friday 19 July 2024 20:40 (20 minutes)*

The aim of the LHCb Upgrade II is to operate at a luminosity of up to 1.5 x $10^{34}$ $cm^{-2}$ $s^{-1}$. The required substantial modifications of the current LHCb ECAL due to high radiation doses in the central region and increased particle densities are referred to as PicoCal. An enhancement already during LS3 will reduce the occupancy and mitigate substantial ageing effects in the central region after Run 3.

R&D on several scintillating sampling ECAL technologies is currently being performed: SpaCal with garnet scintillating crystals and tungsten absorber, SpaCal with scintillating plastic fibres and tungsten or lead absorber, and Shashlik with polystyrene tiles, lead absorber and fast WLS fibres.

Time resolutions of better than 20 ps at high energy were observed in test beam measurements of prototype SpaCal and Shashlik modules. The presentation will also cover results from detailed simulations to optimise the design and physics performance of the PicoCal.

## Alternate track

## I read the instructions above

Yes

**Co-authors:** ZHANG, Chenjia (Peking University); VOS, Keri (Nikhef National institute for subatomic physics (NL))

**Presenter:** ZHANG, Chenjia (Peking University)

**Session Classification:** Poster Session 2

**Track Classification:** 12. Operation, Performance and Upgrade (incl. HL-LHC) of Present Detectors