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## Expected performance of the ALPIDE pixel layers in ALICE FoCal

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The ALICE Forward Calorimeter upgrade (ALICE FoCal) will be installed for LHC Run 4 with the physics goal to probe hadronic matter, its gluon density and the parton distribution functions at Bjorken- $x$  of  $10^{-6}$  and below. The detector - a 20-layer electromagnetic Si-W sampling calorimeter and a copper + scintillating fiber hadronic calorimeter in 'spaghetti' design - will cover a pseudo-rapidity range of  $3.2 < \eta < 5.8$  at a distance of 7 m from the interaction point.

Single, isolated photons will be used as the main detection channel, and the signal of their electromagnetic showers has to be discriminated against background from two-photon decays of neutral mesons. Two layers with ALPIDE sensors (pixel size approx.  $27 \times 29 \mu\text{m}^2$ ) will be installed in the electromagnetic calorimeter at layer 5 and 10 to resolve two photon showers on the mm-scale and to identify one-photon showers.

In this talk we will present the expected performance of the FoCal pixel layers. We will compare results from testbeams with detector simulations, including studies on the single photon discrimination power and the shower position resolution. Furthermore, we will discuss expected hit rates and occupancies, as well as expected dead times from so-called BUSY violations. Potential mitigation strategies for this effect (e.g. operating ALPIDEs with back-bias voltage) and corresponding test results from beamtests will also be subject to this talk.

### Primary experiment

ALICE

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