

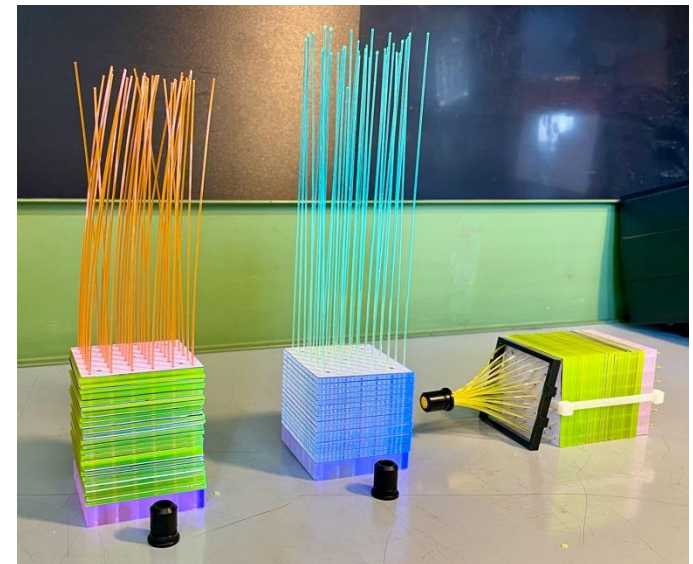
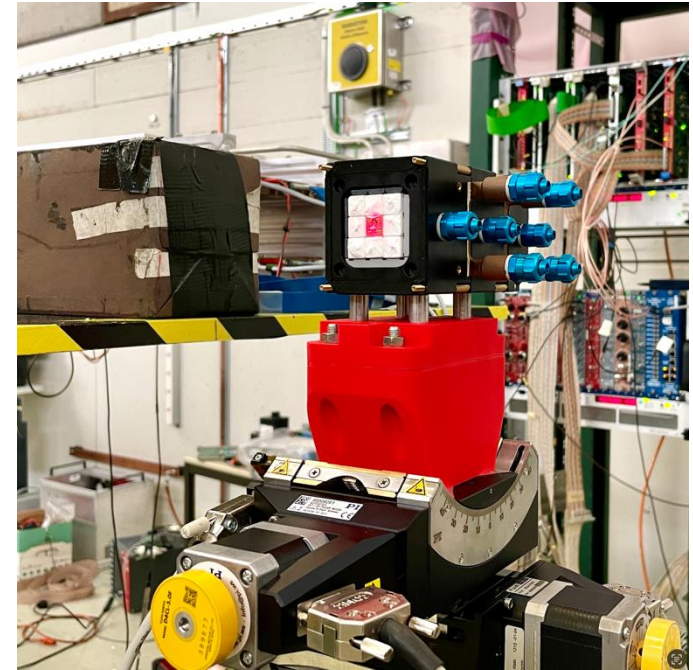
W38-39 HIKE SAC/NanoCal program in T9

W38: HIKE SAC

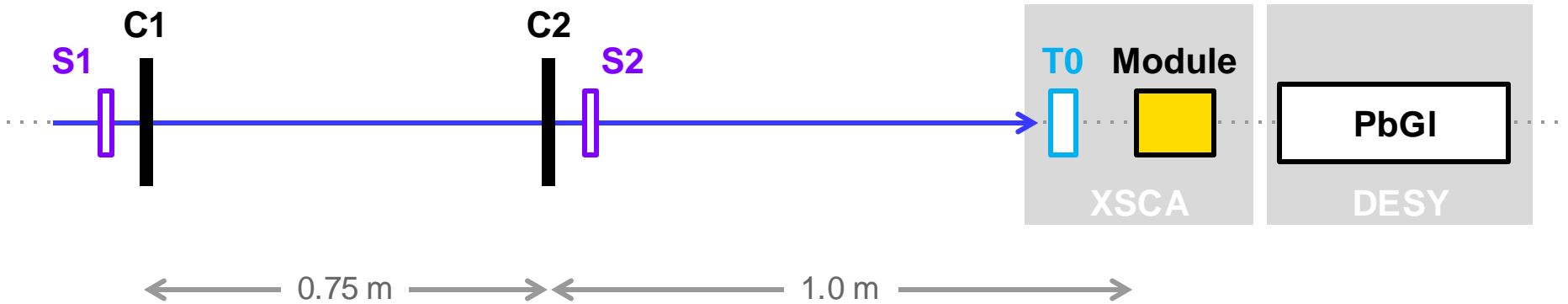
- **Main goal:** Use CRILIN prototype to measure transverse profile and time resolution for EM showers with and without crystal alignment
- **If time allows:** Test PWO-UF crystal with fast PMT readout; measure time resolution

W39: NanoCal

- **Main goal:** Test new, full scale fine-sampling shashlyk prototype
 - Test platform for tests of NC scintillator in shashlyk configuration
 - Intended as early prototype for HIKE MEC
- **If time allows:** Compare light yield of green and orange scintillator candidates before and after irradiation (samples irradiated at IRRAD)
 - Information on radiation resistance of WLS materials for use with NC scintillators
 - Intended applications for HIKE MEC → Possible applications for LHCb?



HIKE SAC/NanoCal setup



S1, S2

Trigger scintillators

C1, C2

Silicon-strip tracking chambers, $10 \times 10 \text{ cm}^2$

T0

Fast timing detector

Module

Device under test:

CRILIN (mounted on goniometer) or shashlyk

PbGI

Lead-glass calorimeter

HIKE SAC/NanoCal requirements

Beam requirements:

Electron beam, 1, 2, 3, 4 GeV

- Spot size 10-20 mm, low divergence (but not critical)

MIP beam (μ^- or π^-), ~4 GeV

- Up to 10^5 particles/spill (i.e. 10^4 good triggers/spill)
- Momentum not critical, can be optimized for muon yield

Installation requirements:

- Length: 3 m
- Width: 1.5 m
- Height: 1.5 m
- Heaviest equipment: ~60 kg
- Installation time: 8 hrs
- Removal time: 2-3 hrs

Requested infrastructure:

- XSCA table for CRILIN
if unavailable can use DESY table
- DESY table for calorimeters
- Cerenkov detectors:
BCA1 & 2 with gasses to allow verification of beam ID $e/\mu\pi/p$