

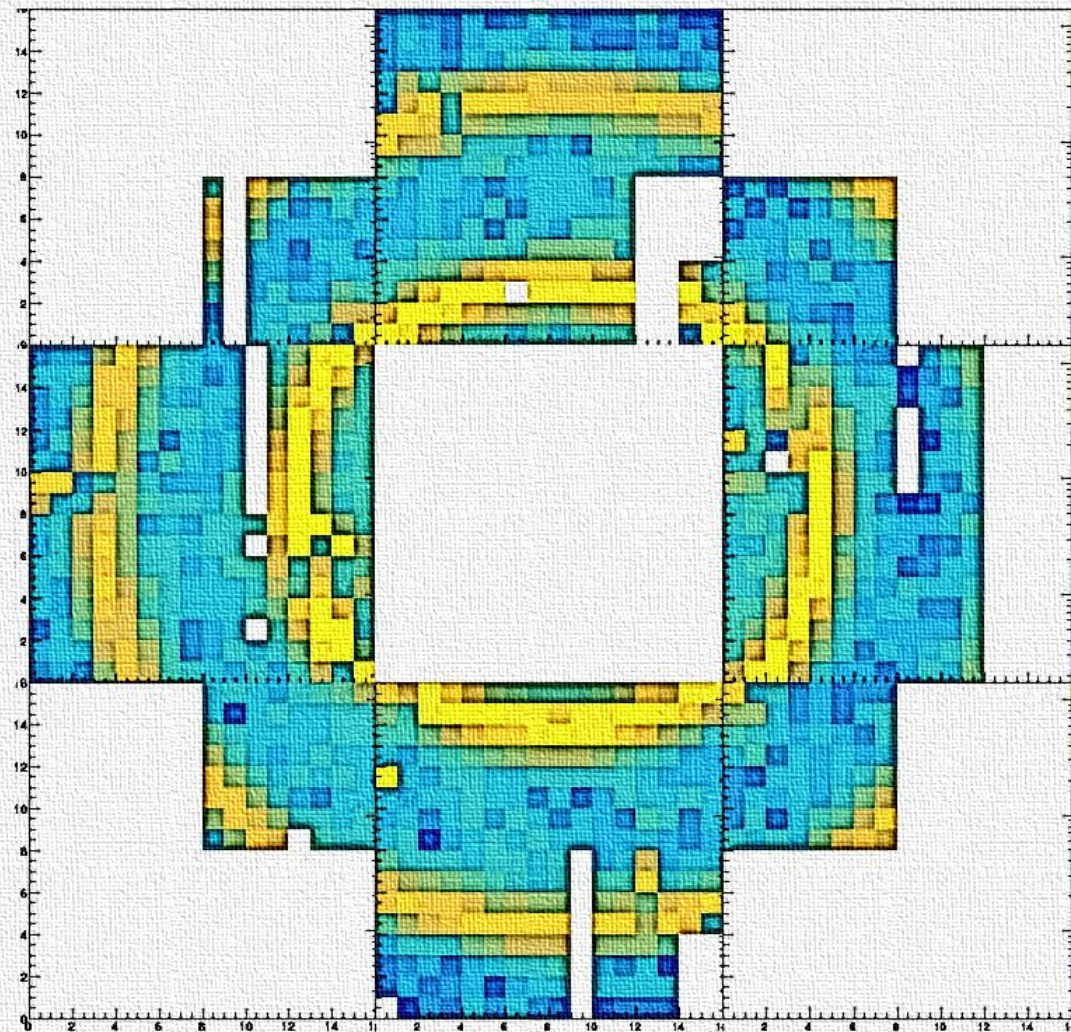
ePIC-dRICH beam test 2023

prototype SiPM photodetector

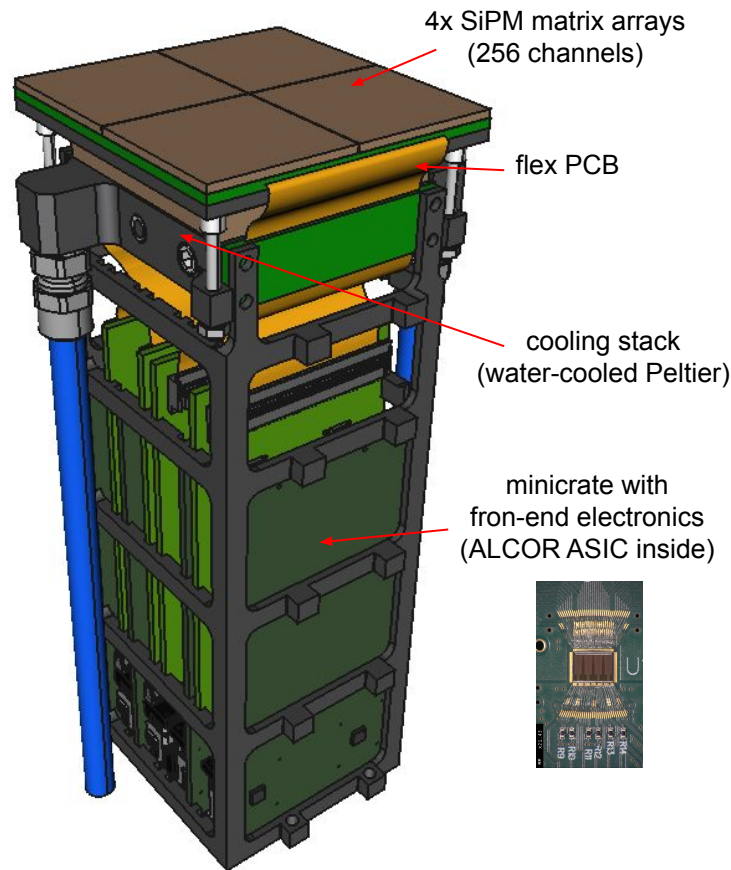
Roberto Preghenella

BO, CS, CT, DUKE, FE, SA, TO

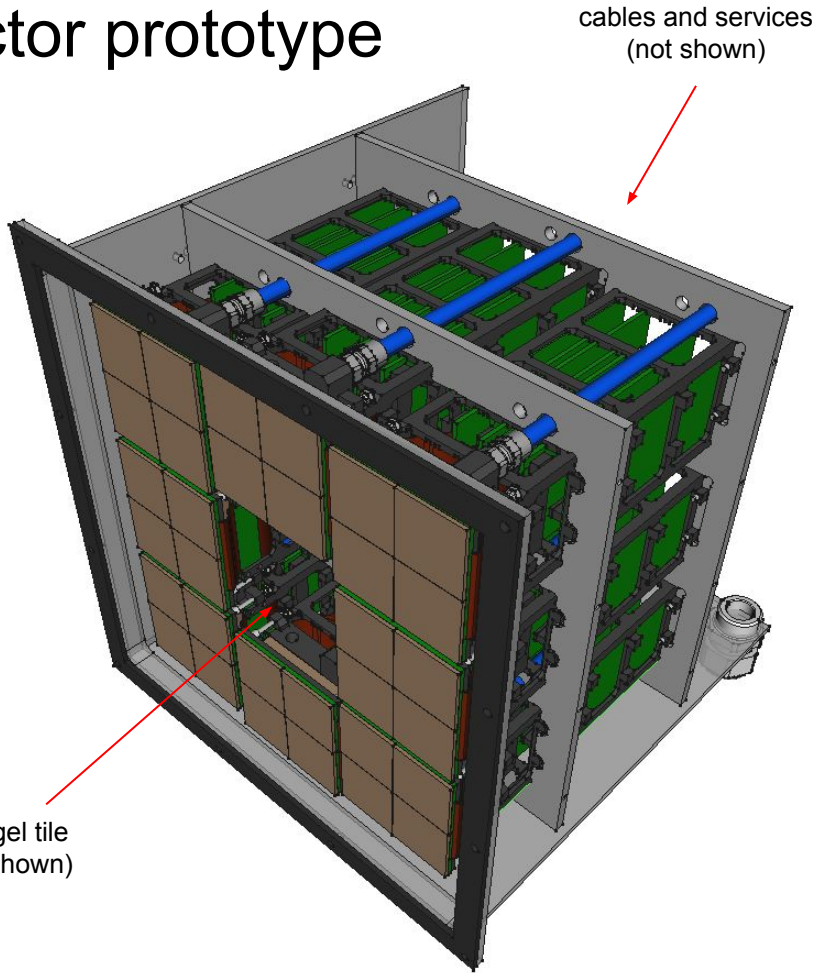
8-18 October 2023, CERN-PS T10 line



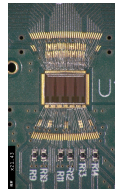
EIC ePIC-dRICH SiPM photodetector prototype



PhotoDetector Unit (PDU)



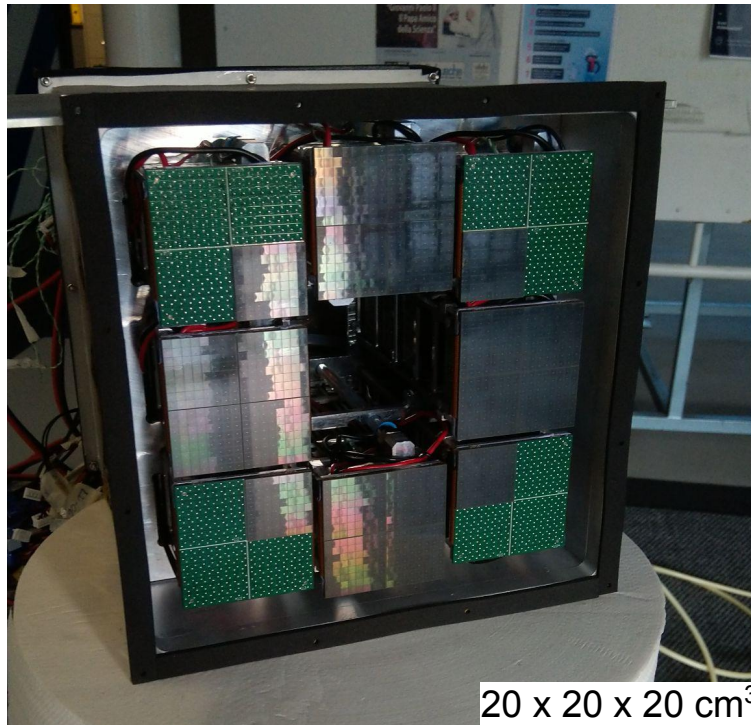
Readout Box



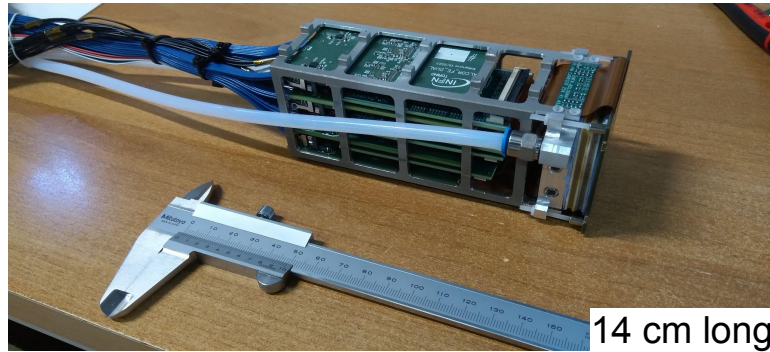
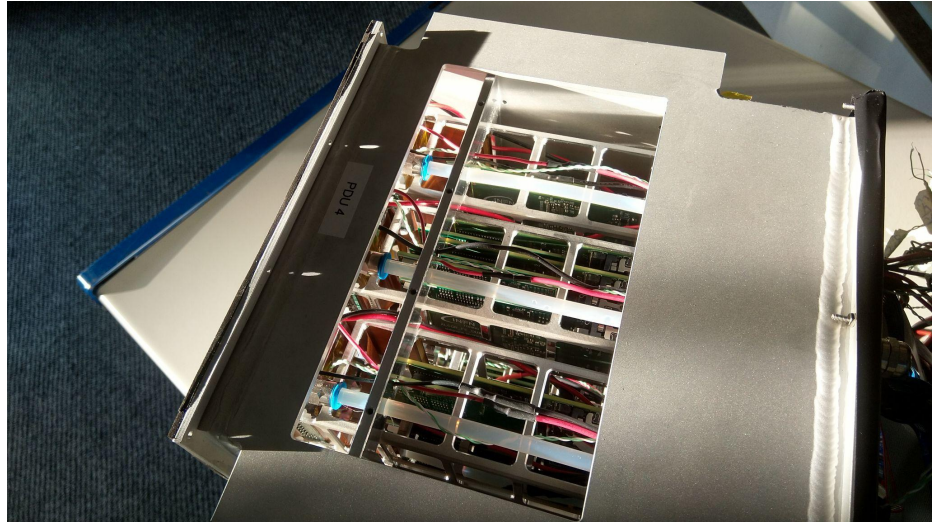
EIC ePIC-dRICH SiPM photodetector prototype

Readout Box (top)

Readout Box (front)



20 x 20 x 20 cm³



PDU

14 cm long

DAQ and DCS
computers

auxiliary control
electronics crates

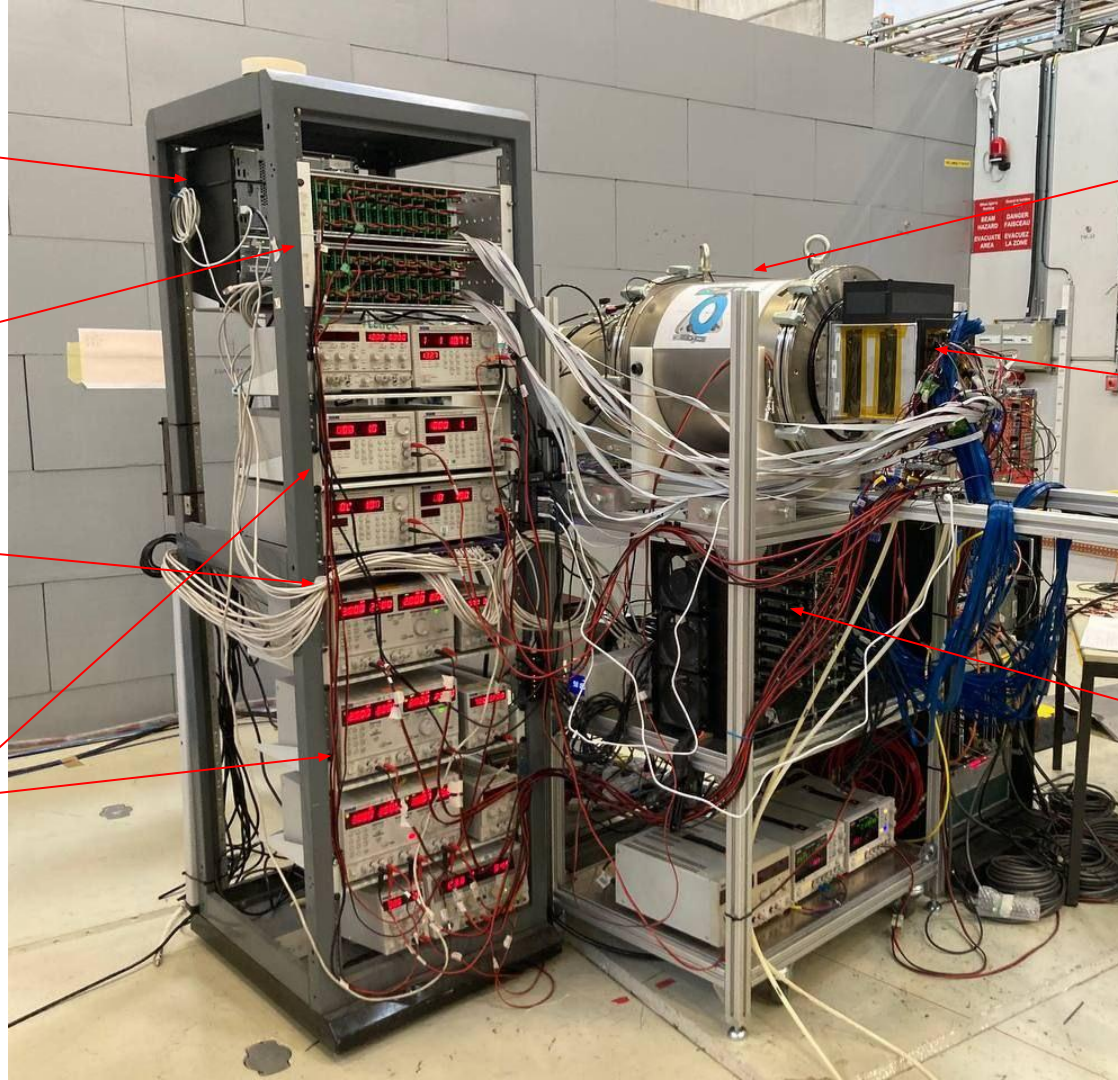
gigabit ETH
switch for DAQ
and DCS

low voltage and
high voltage
power supplies

dRICH
prototype

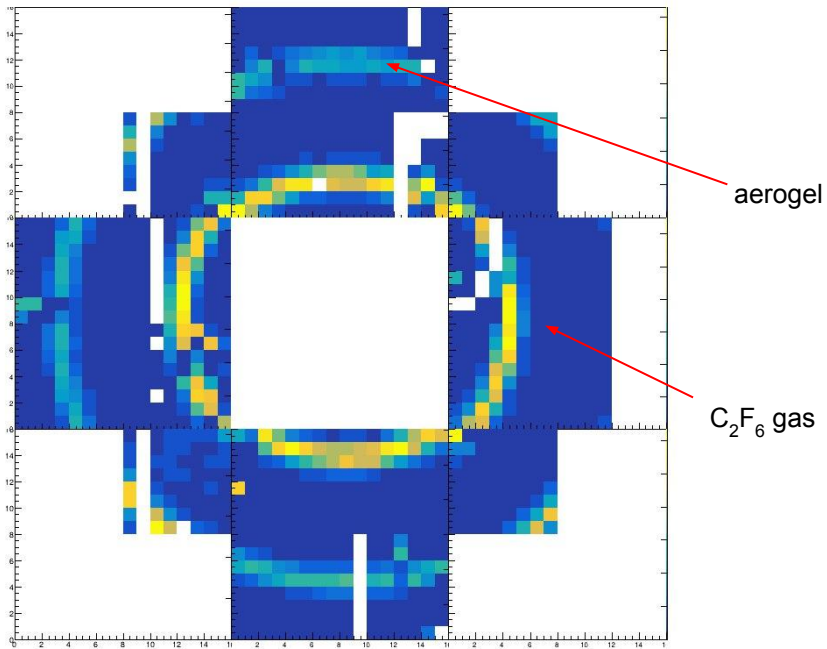
SiPM
photodetector
readout box

DAQ FPGAs and
clock distribution



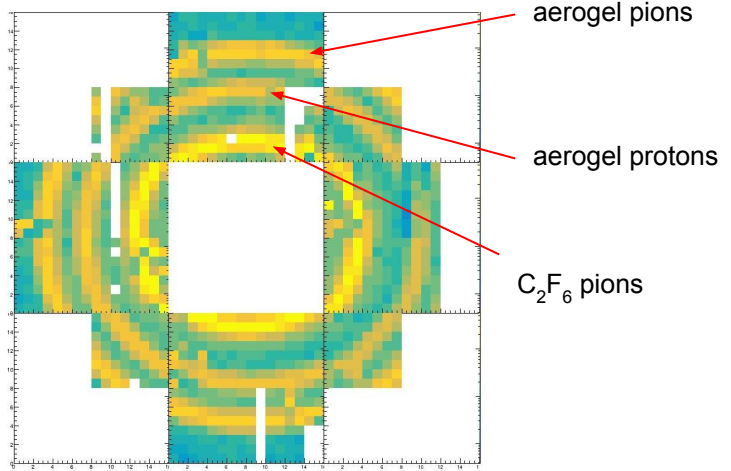
Online monitors and QA plots: successful beam test

10 GeV negative beam
(dual radiator configuration)



PDU 1	PDU 2	PDU 3	PDU 4
bias voltage 53.0 v	bias voltage 53.0 v	bias voltage 53.0 v	bias voltage 53.0 v
PID control On	PID control On	PID control On	PID control On
setpoint -37 °C	setpoint -37 °C	setpoint -37 °C	setpoint -35 °C

low temperature SiPM operation



a very big thank you! Special thanks to the ALICE3 team for sharing the beam with us

8 GeV positive beam

**thanks to all who made
this beam test possible**
and who participated and
has taken shifts

plenty of good data

an analysis group will be
setup in the coming days
**contact us if interested
in joining analysis
efforts**

