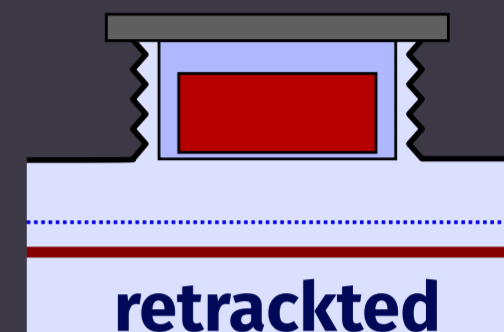# ATLAS Roman Pots
at LHC Run 3 – Detector Status

Roman Pot

secondary vacuum

detector

beam pipe

forward proton

proton beam

ultra-high vacuum

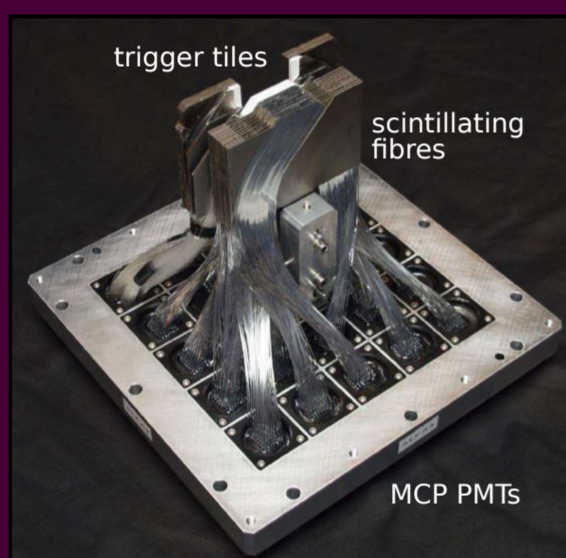inserted

retrackted
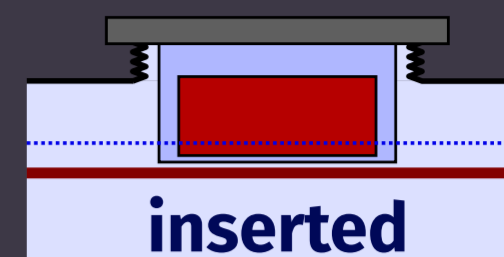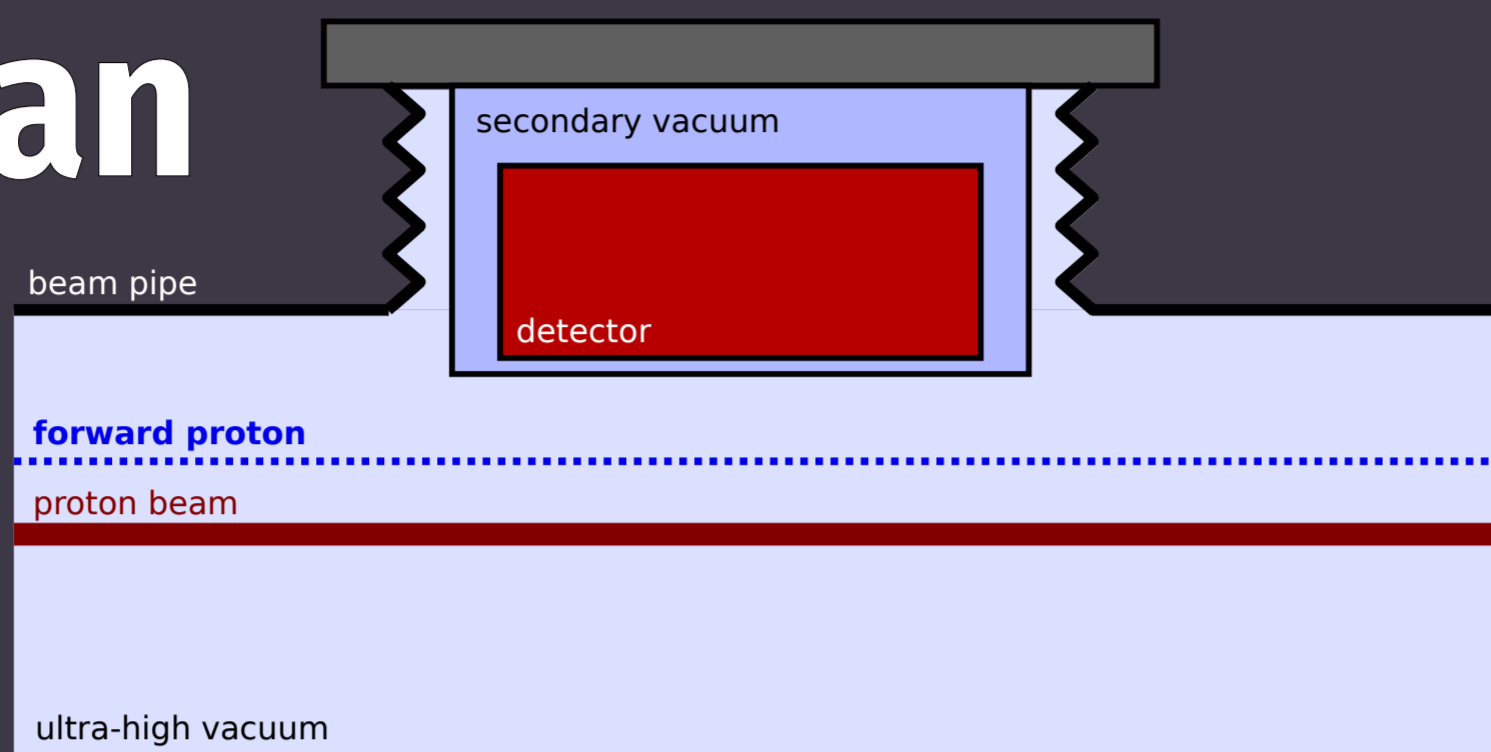
Protons get separated from the beam

because they get scattered

because they lose some energy
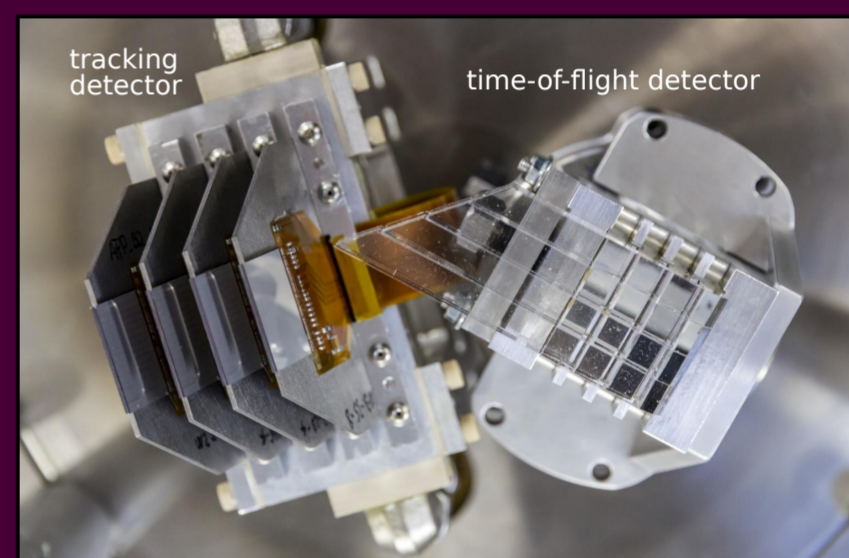
ALFA

trigger tiles

scintillating fibres

MCP PMTs

require special LHC optics settings with reduced final beam focussing at the interatction point

AFP

tracking detector
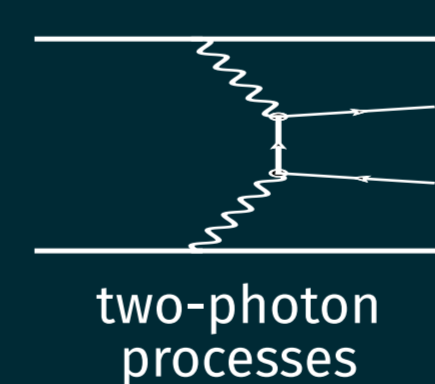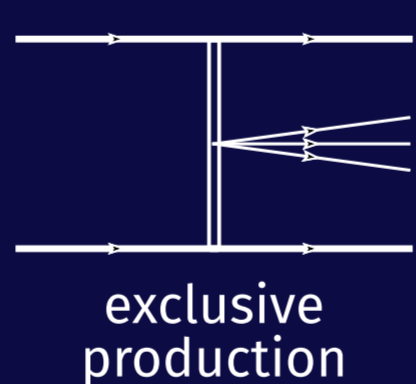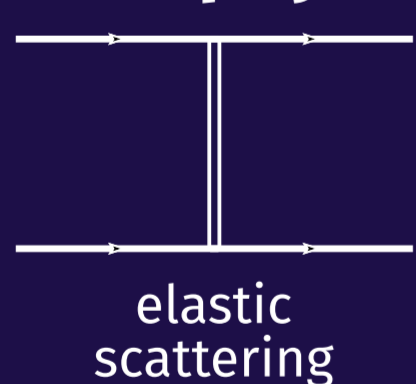
time-of-flight detector

work as a magnetic spectrometer taking advantage of the LHC beam-separation dipole magnets

Motivation: a new physics object for ATLAS

ALFA physics

elastic scattering

inclusive diffraction

exclusive production

two-photon processes

AFP physics

Data-taking plans

AFP
– all standard LHC runs (large integrated luminosity)
– special low pile-up runs (clean environment)

ALFA
– special runs with high-β^* LHC optics (acceptance for small scattering angles)
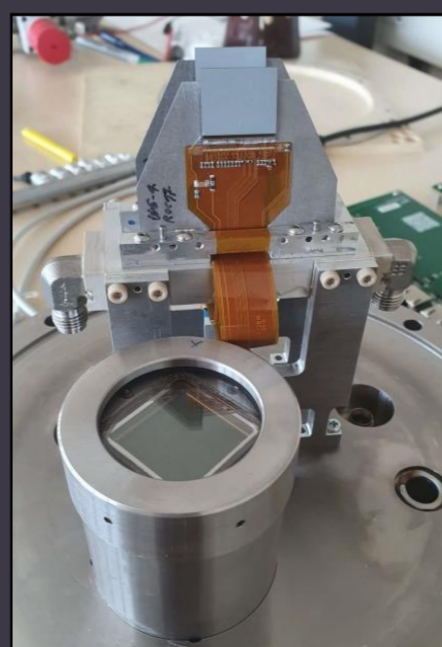
Preparations for Run 3

AFP
– new ToF light guidance bars and MCP-PMTs, out-of-vacuum PMT design for ToF MCP-PMT
– 3D Si modules replaced

ALFA
– motherboards replaced

commissioning in progress

AFP C FAR Silicon Tracker plane 0
√s = 900 GeV; β* = 11 m; pot-beam distance = 16 mm

ATLAS Preliminary

pixel column (y-direction)

pixel row (x-direction)

Rafał Staszewski on behalf of the ATLAS Forward Detectors

ATLAS EXPERIMENT

THE HENRYK NIEWODNICZAŃSKI
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POLISH ACADEMY OF SCIENCES