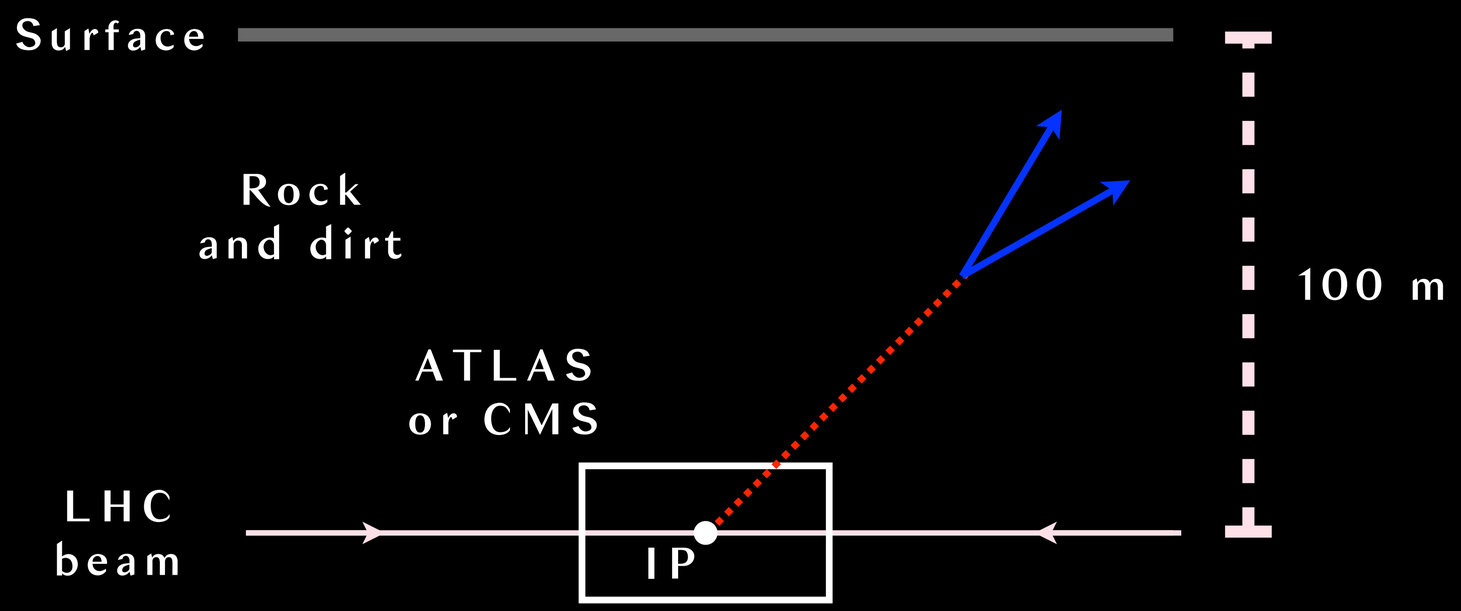
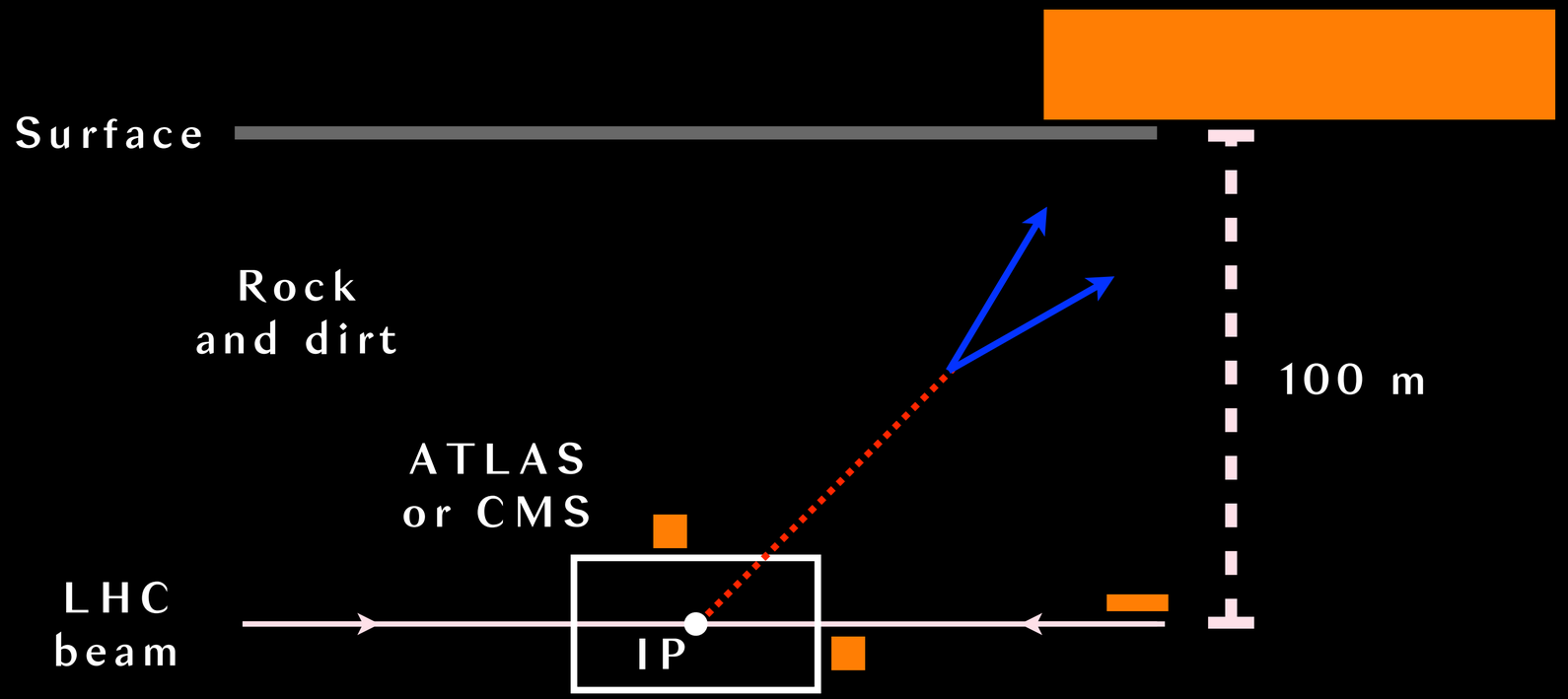
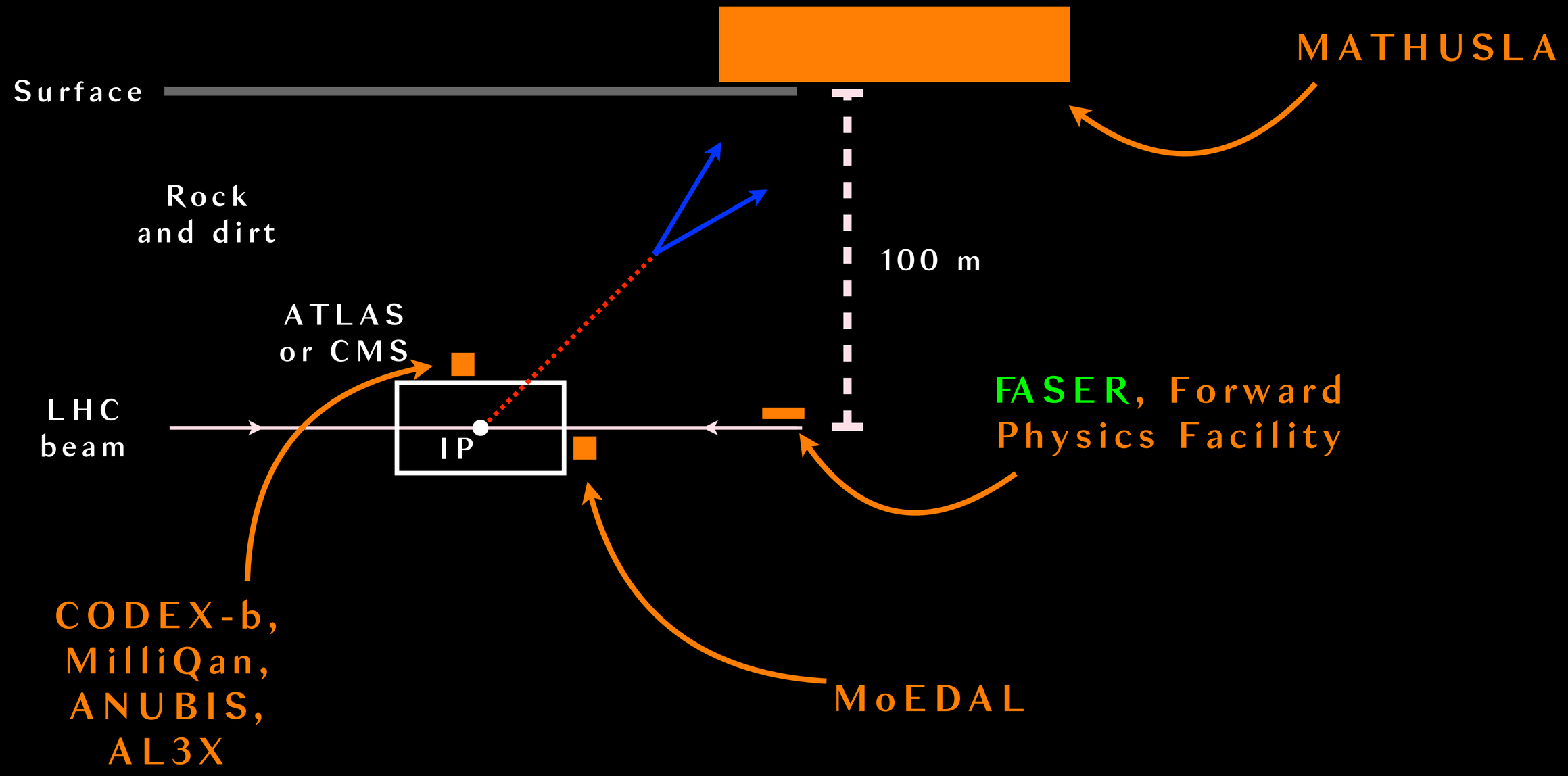
Dedicated detectors for ultra long-lived particles at the LHC



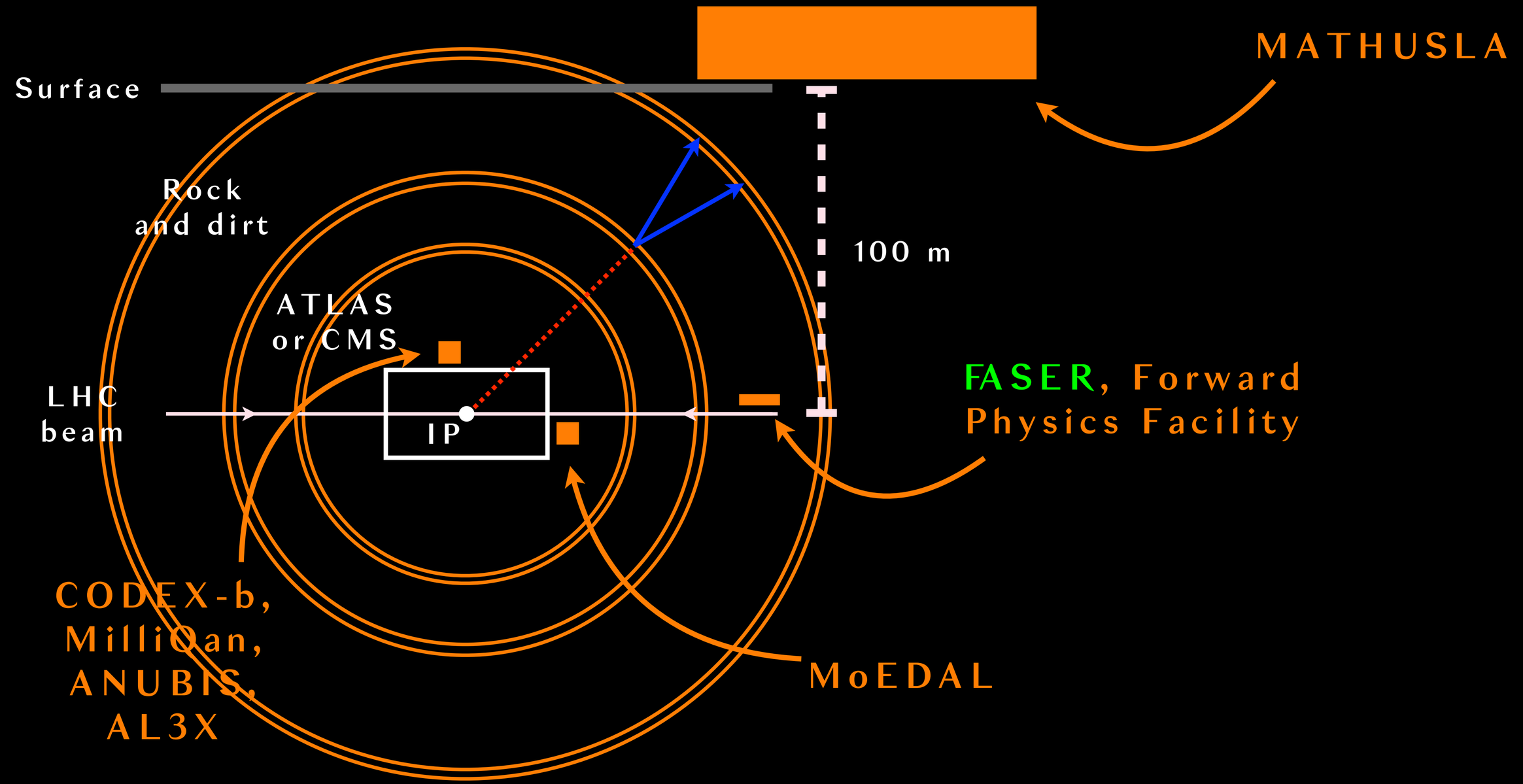
Dedicated detectors for ultra long-lived particles at the LHC



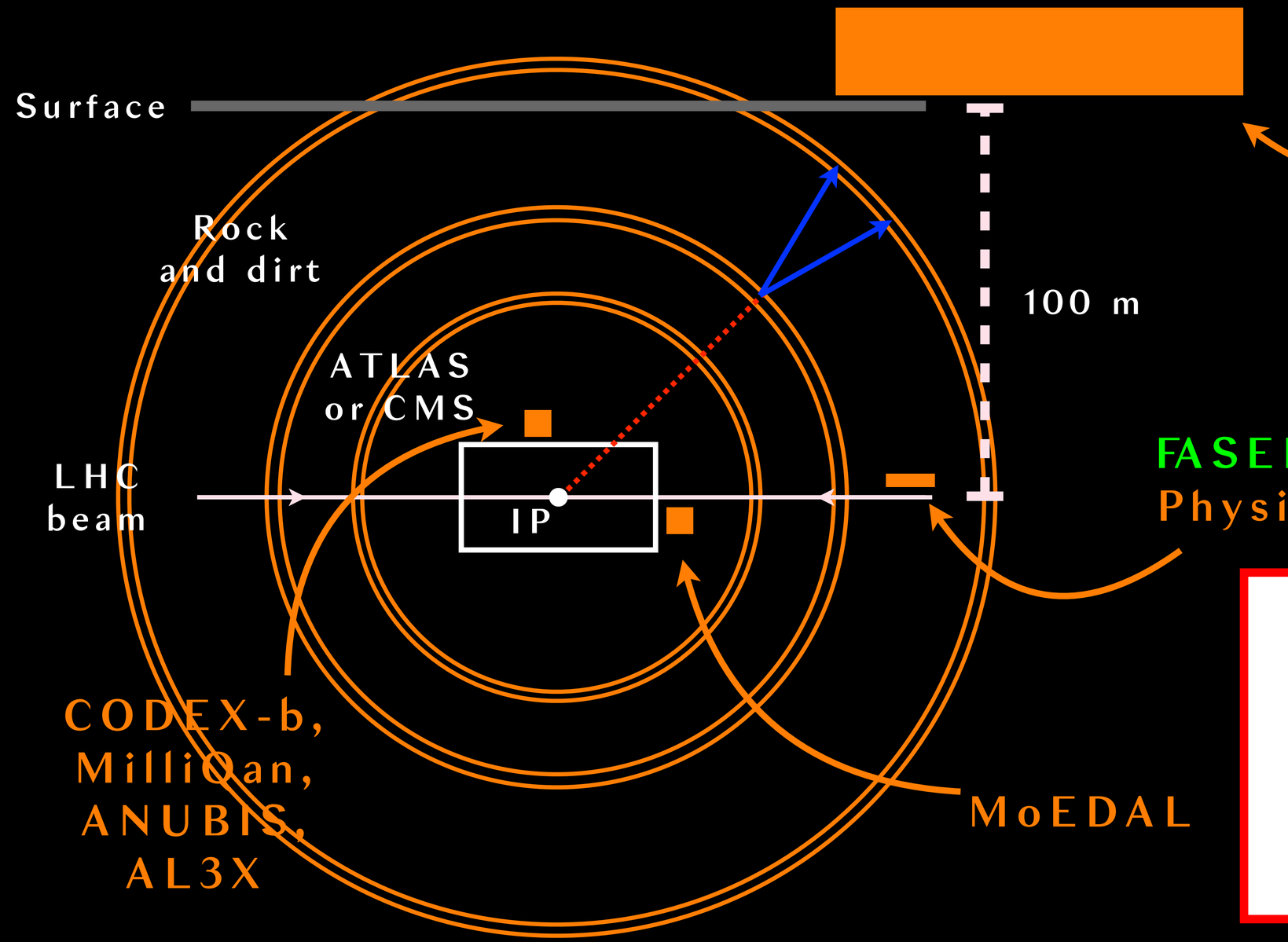
Dedicated detectors for ultra long-lived particles at the LHC



Dedicated detectors for ultra long-lived particles at the LHC



Dedicated detectors for ultra long-lived particles at the LHC

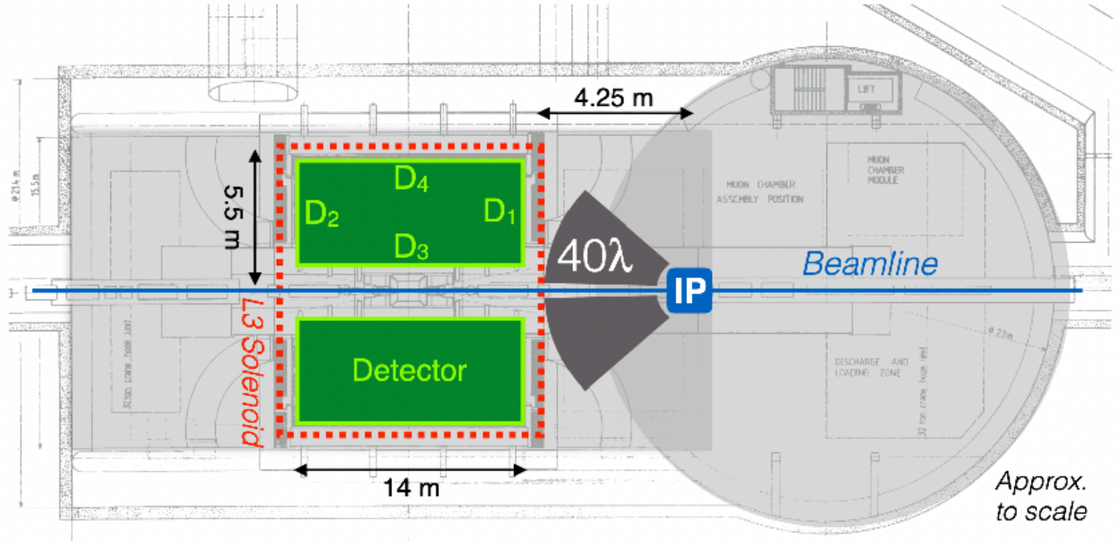


4π shell is a good idea *after* discovery

AL3X was a good idea

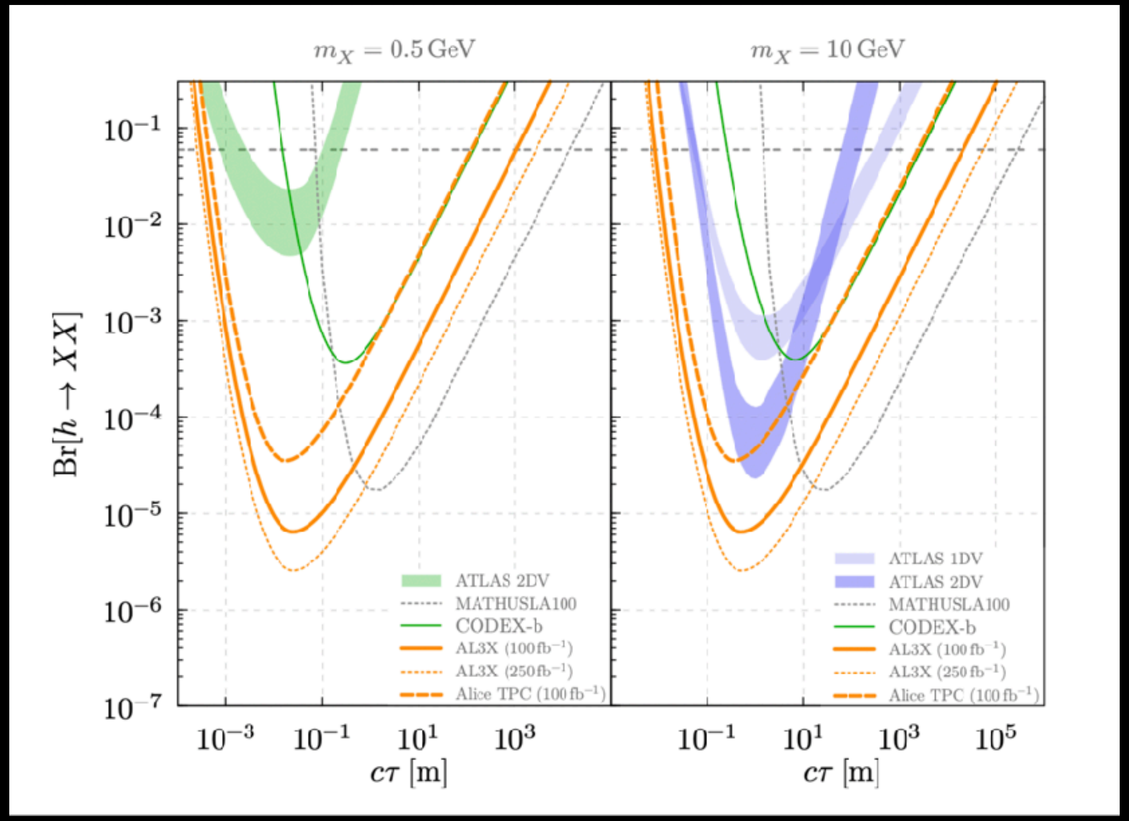
A Laboratory for Long-Lived eXotics

(called “AL3X” and pronounced “Alex”)



Will come back to these soon

Move IP, add absorber, increase lumi.
See what comes out the back!



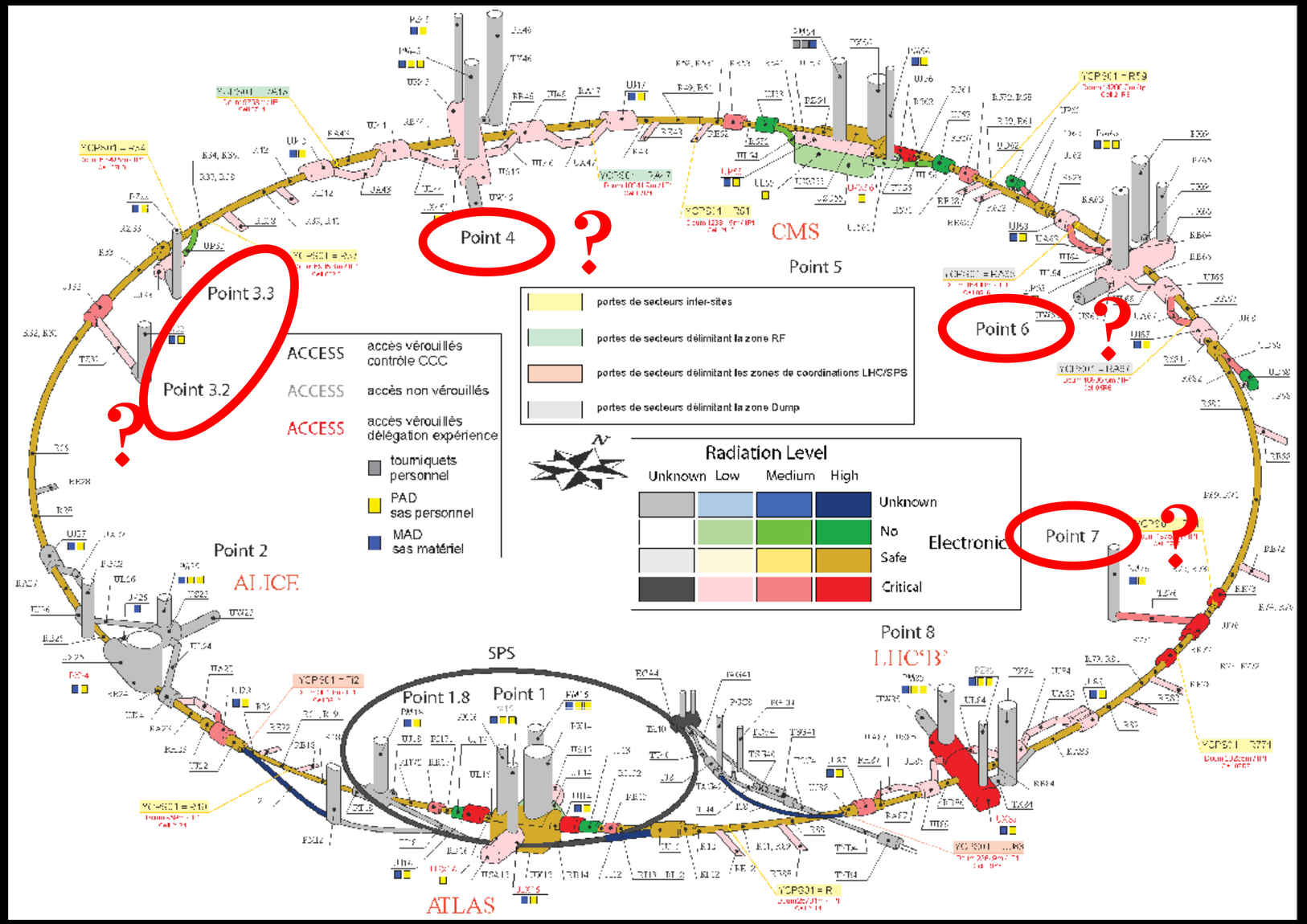
AL3X: 1810.03636

Adding an IP to the LHC for LLPs

Several other LHC access points currently used for various essential accelerator / beam roles, but not hosting interaction points

RF and cleaning in Points 4 and 7, for example

Assume we could 1) find a good candidate location and 2) maintain the necessary functionality for the accelerator



Adding an IP to the LHC for LLPs

Excavation / civil engineering, magnets, power convertors, vacuum, protection masks

—> Adding an IP alone could be at least 600 MCHF, probably more

Then need to add a detector — perhaps something AL3X-like

—> No clue how much this would cost, from scratch

—> Take-home message: The current LLP proposals do a fairly good job for the cost