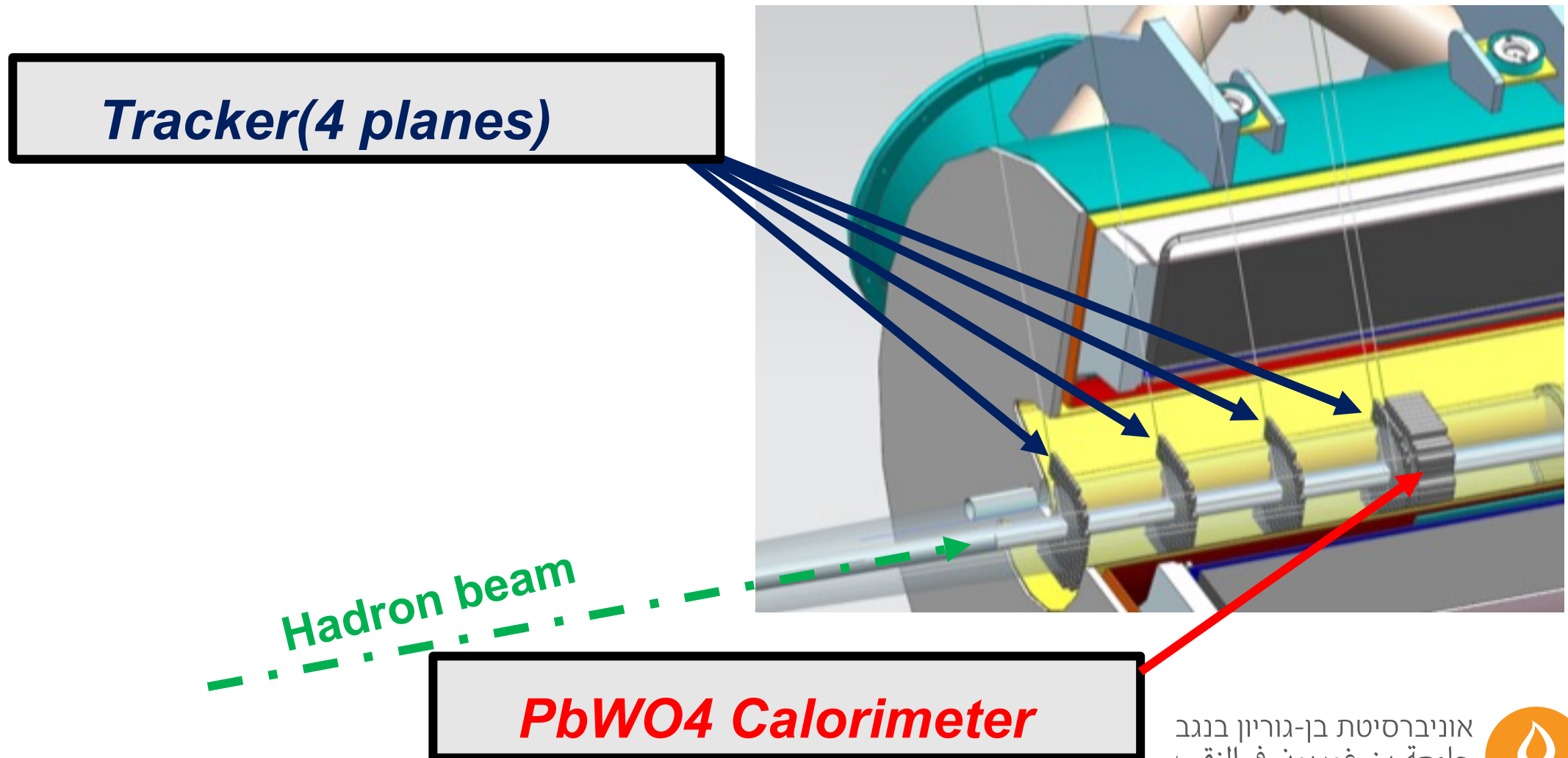# B0 Tracker and EMCAL

Zvi Citron, Eden Mautner, Michael Pitt (*Ben Gurion University of the Negev*)

B0 Tracker and EMCAL – design

Tracking planes (4 planes):

- Ideal situation – a single technology: AC-LGAD (assuming 20 um special resolution)

- ~~Current proposal – 3+1 design: 3 layers of MAPS + 1 layer of AC-LGAD~~

  - MAPS too slow / hard to fit detector's shape

- Alternative option – 3+1 design: 3 layers of TimePix + 1 layer of AC-LGAD

Calorimeter:

- Scintillator material: PbWO4 2x2x10 cm^3 crystals (11.2X_0, 0.5λ)

- Readout: Baseline assumption SiPM

  - Not final: important to minimize thickness & desirable to have technological overlap

    with other detectors

B0 Tracker and EMCAL – Simulation

- B0 detector geometry is implemented in ePIC simulation software

Reconstruction:

- ECAL clustering – done

- Tracking algorithm – missing

- Performance studies:

- Machinery for ECAL acceptance studies is in place,

- Tracking performance is ongoing (mainly by Alex J.)

- We can test the impact on different physics scenarios

- Relatively fast turnover for changes in design

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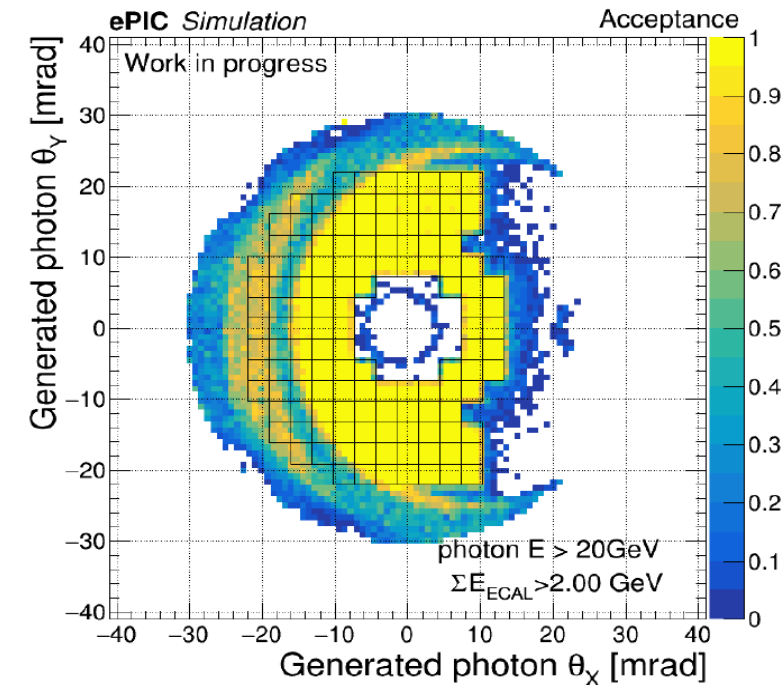
B0 Tracker and EMCAL

Discussion

- Tracker technology is still to be determined, not a bottleneck for the design

- ECAL readout and support structure need to be finalized

  - We are happy to converge on a readout technology that overlaps with other detectors

- Cooling/support structure is not fixed yet – ongoing discussions with Yulia / engineers