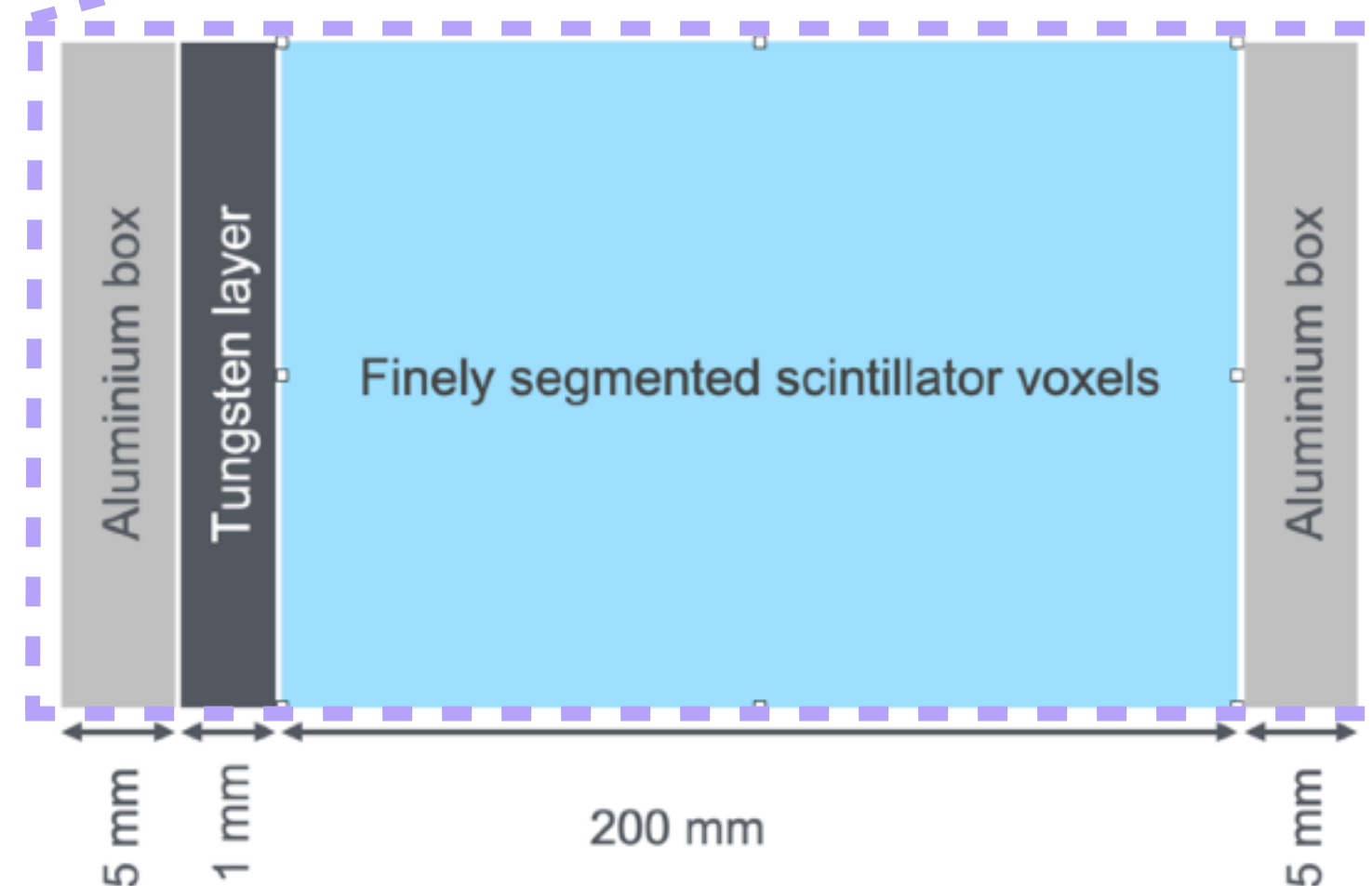
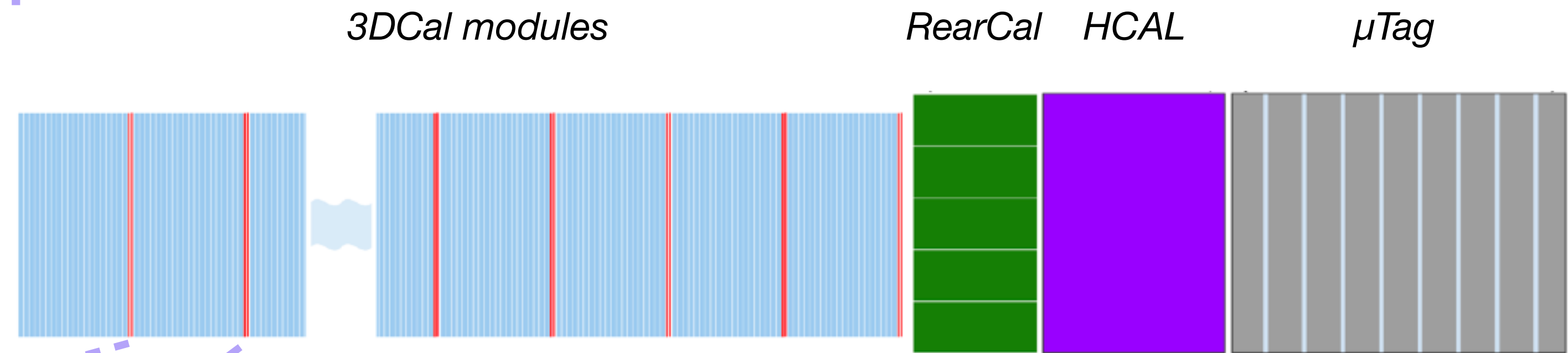


# ForwArd Search ExpeRiment

## FASERCal Detector Conceptual Design

### Proposed Solution: *FASERCal*

- Fully electronic 3D Precision Calorimeter for High Energy Neutrinos, and sub-detectors.  
(A. Rubbia et al)



- 10 3DCal modules (520 kg):** each with 20 layers of 50x50 3D scintillator voxels → calorimetric information and tracking
- RearCal:** sampling calorimeter to enhance EM shower containment + energy measurement
- HCAL:** sampling calorimeter for hadronic energy measurements
- μTag / spectrometer:** dedicated detector for muon measurement

# ForwArd Search ExpeRiment

## FASERCal Run 4 Upgrade

- **The Basic Unit - Scintillating Voxel**
  - Detector built from thousands of **1 cm<sup>3</sup> plastic cubes**
  - A **charged particle crossing a cube** → cube scintillates, emitting photons
- **Capturing the Light: Wavelength-Shifting (WLS) Fibers**
  - Three orthogonal fibers pierce each cube
  - Fibers absorb scintillation light → re-emit & guide photons to sensors at detector edges

