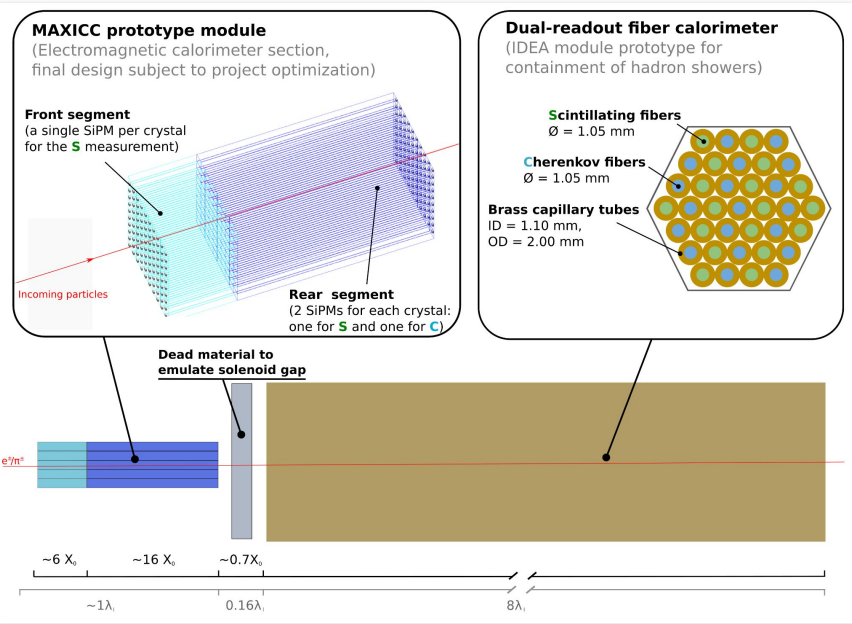
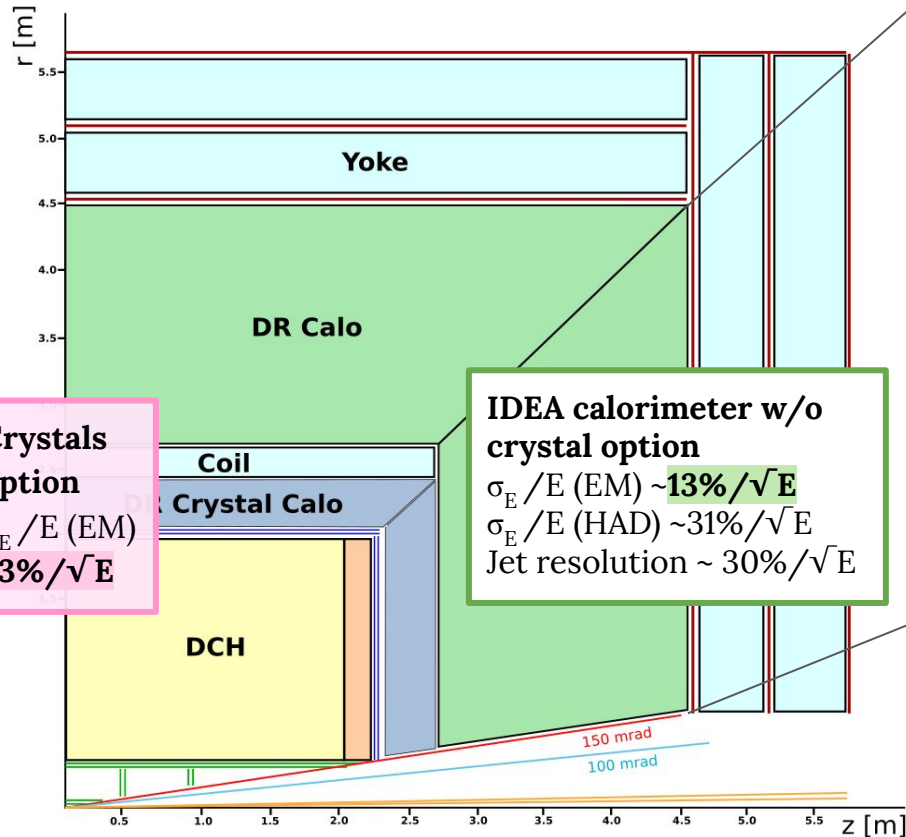


# IDEA detector for future $e^+e^-$ colliders

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# Simulation



The addition of a **dual readout\*** crystals calorimeter will **improve** the **EM energy resolution** to enhance the **reconstruction** of physics objects and expand the **FCce** physics program.

**WIP** Full Simulation of the IDEA Detector: in the **Key4Hep** framework

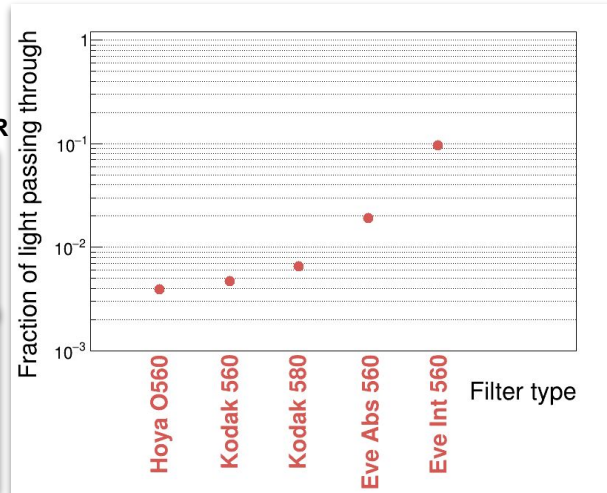
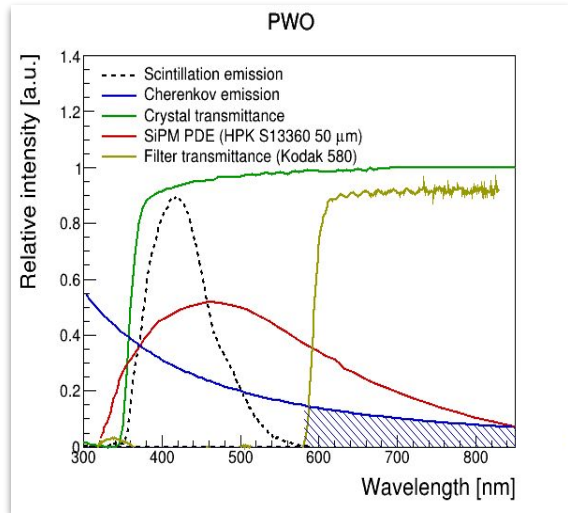
\*reading both **Scintillation** and **Cherenkov** light from the same active material

# Prototyping R&D

## Test beam campaigns for prototyping purposes

- **BSO, BGO, PWO** are good candidates as they have a small Moliere radius and radiation length (**compactness**) as well as high refractive index (**high Cherenkov yield**). Optimization of crystal cross section and longitudinal segmentation
- **Thin Optical filters** needed to filter out scintillation light to have a pure Cherenkov signal in the 560-1000 nm region. Different options have been considered:
  - **Customized interference filters** discarded because their measured transmittance curve depends strongly on the photon incident angle  $\theta$  by construction
  - **Absorptive thin filters** have angular independent response and high optical density.

@INFN Milano-Bicocca, CalVision



### ABSORPTIVE FILTERS



thickness  
100 μm

KODAK 580



thickness  
260 μm

EVERIX 560



thickness  
100 μm

KODAK 560



thickness  
2500 μm

HOYA 560

# Backup

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