# Imaging calorimeter based on monolithic silicon sensors

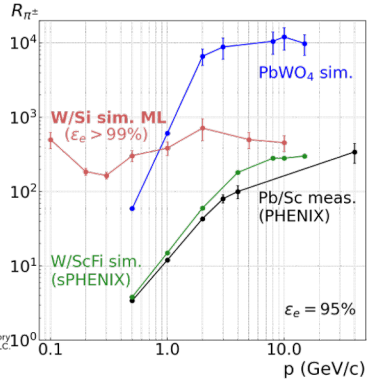
- Based on **AstroPix** (developed for NASA, off-the-shelf https://arxiv.org/pdf/2101.02665.pdf)
- **Ongoing design optimization** using the simulation with IP6@EIC software framework
- Tests against YR benchmarks: $e/\pi$ separation, shower separation, spatial and energy resolutions

We agreed that hybrid option will be studied, i.e.

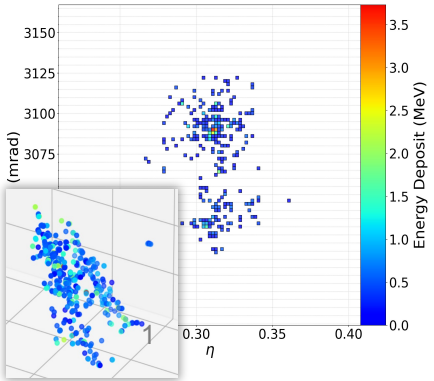
- Few imaging layers (number of layers will be optimized to keep e/h, $\pi^0/\gamma$ separation at desired level),
- Followed by standard 'crudely' segmented ECal, which work as a strong back for imaging part.
- It was suggested to contact Zisis P. (GLUEX barrel ECal) to get model which ANL group can iterate (GLUEX resolution not necessary, but had to fit into allocated space, i.e., reduce sampling fraction compare to GLUEX to get a reasonable resolution) this will be implemented in ANL model for MC.

We discussed of possibility of having a timing for a first layer (LGAD), if technology ready for day 1, or design detector with upgrade path in mind.

Rejection Power for $\pi/e$




$\pi^0 \rightarrow \gamma\gamma$ Event Sample (5 GeV)




Pixel Readout 0.5×0.5 mm²; 20 ~ 700 keV Dynamic Range; 5 keV Noise Level; 2% Flat Resolution