



# **Status Report**

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# Hardware

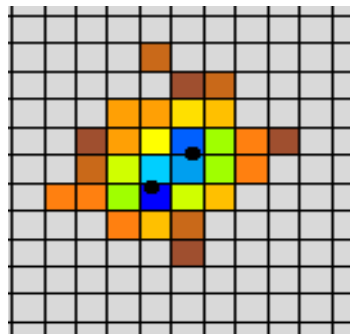
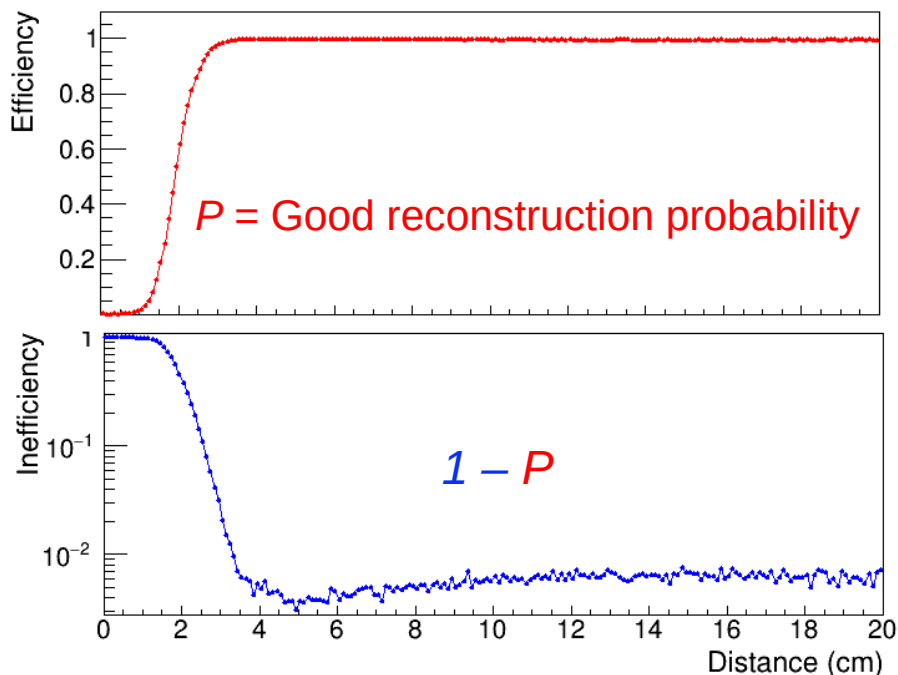
- Testing of PMT dividers
- Arrangement cables after testing



# Software

Island Algorithm

## Two 2 GeV incident gammas check:

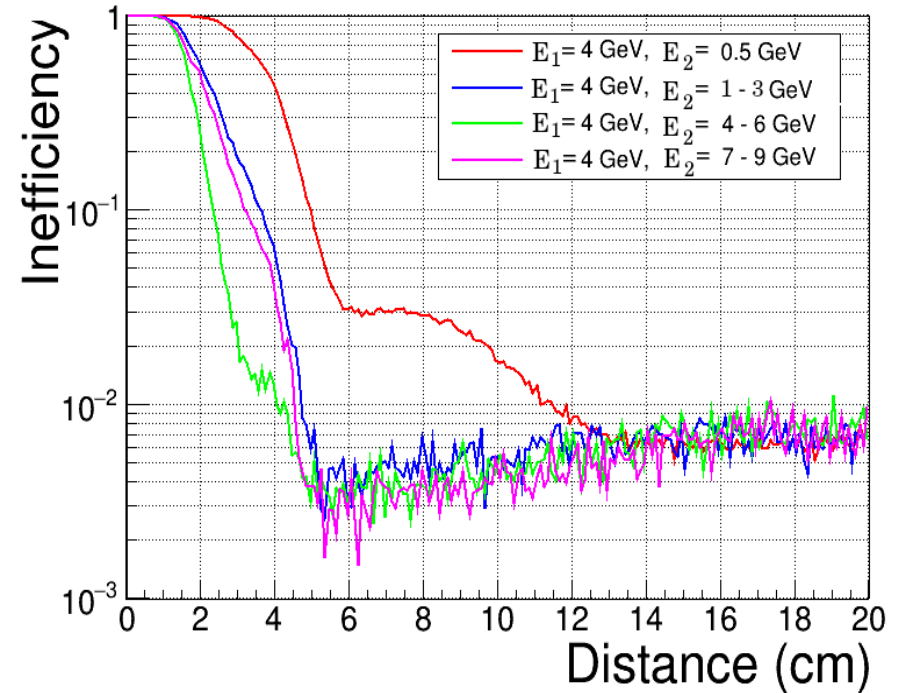
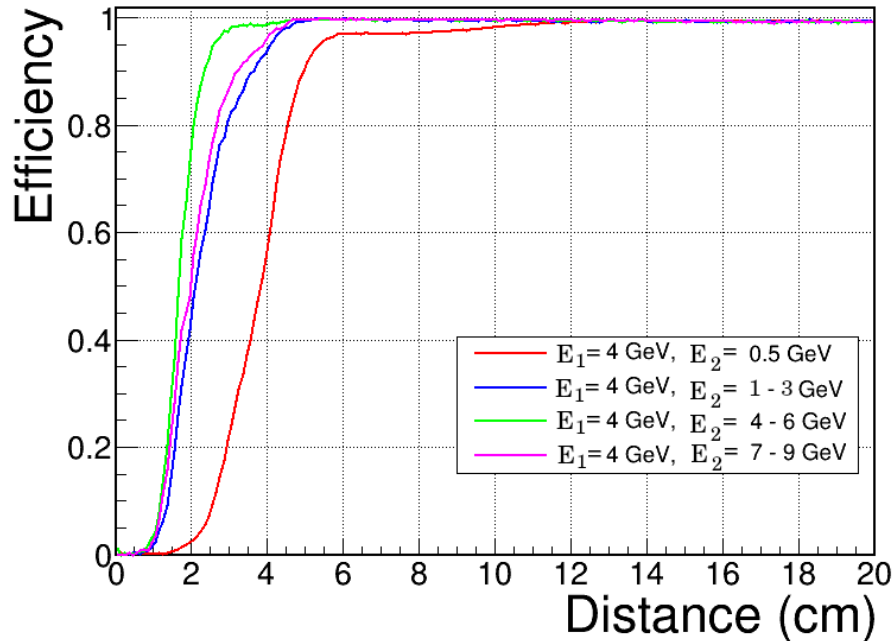


Good reconstruction definition:

- $(E_{rec-d} - E_{MC\ thrown})$  with in certain  $E_{cut}$  value
- $|X_{Rec} - X_{Thrown}| < 2cm, |Y_{Rec} - Y_{Thrown}| < 2cm$

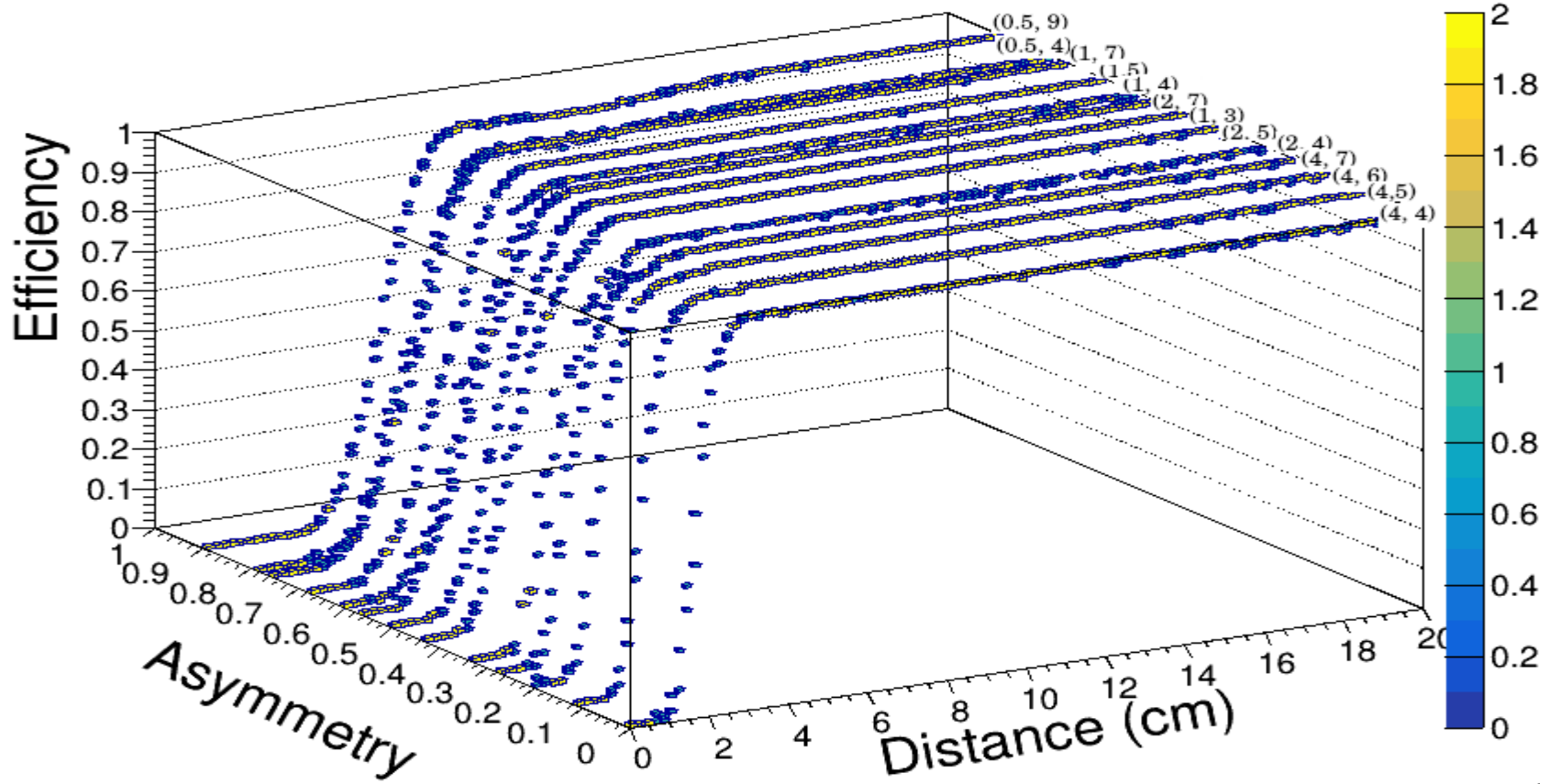
# Check with different energies:

1<sup>st</sup> – 4 GeV; 2<sup>nd</sup> – between 0.5 GeV and 9 GeV

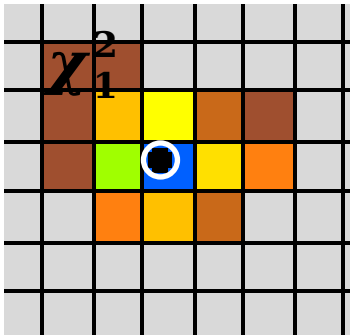


10M events processed; energy match within 25%

# Reconstruction efficiency VS energy asymmetry $\equiv |E_1 - E_2| / (E_1 + E_2)$

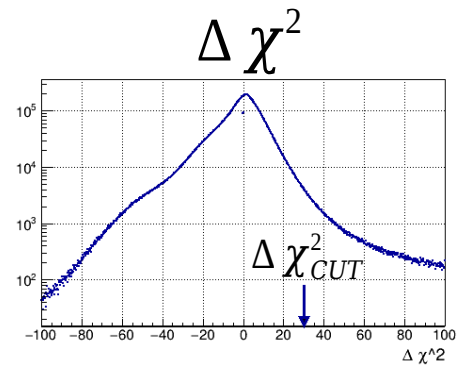
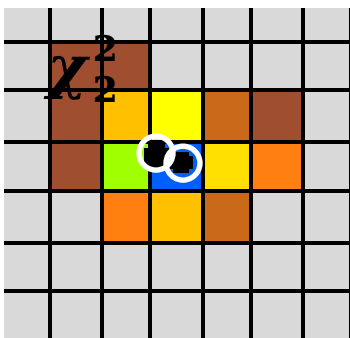


# Separation efficiency for the different $\Delta\chi^2$ parameter values (4 GeV + 4 GeV) gamma pairs



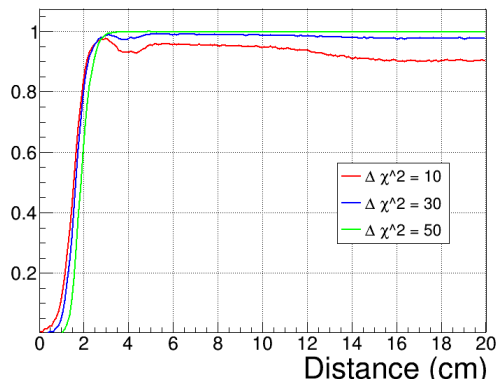
To split or not to split?  
based on  $\chi^2$  improvement  
parameter  $\Delta\chi^2$

$$\chi_1^2 - \chi_2^2 \equiv \Delta\chi^2 > \Delta\chi_{CUT}^2 ?$$

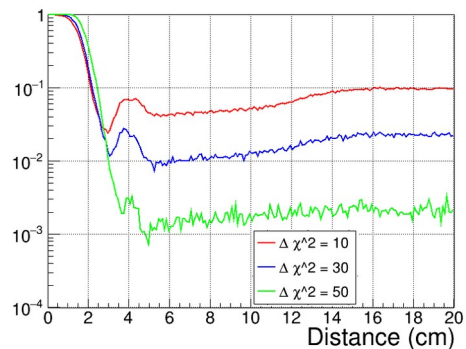


Default (optimized) value

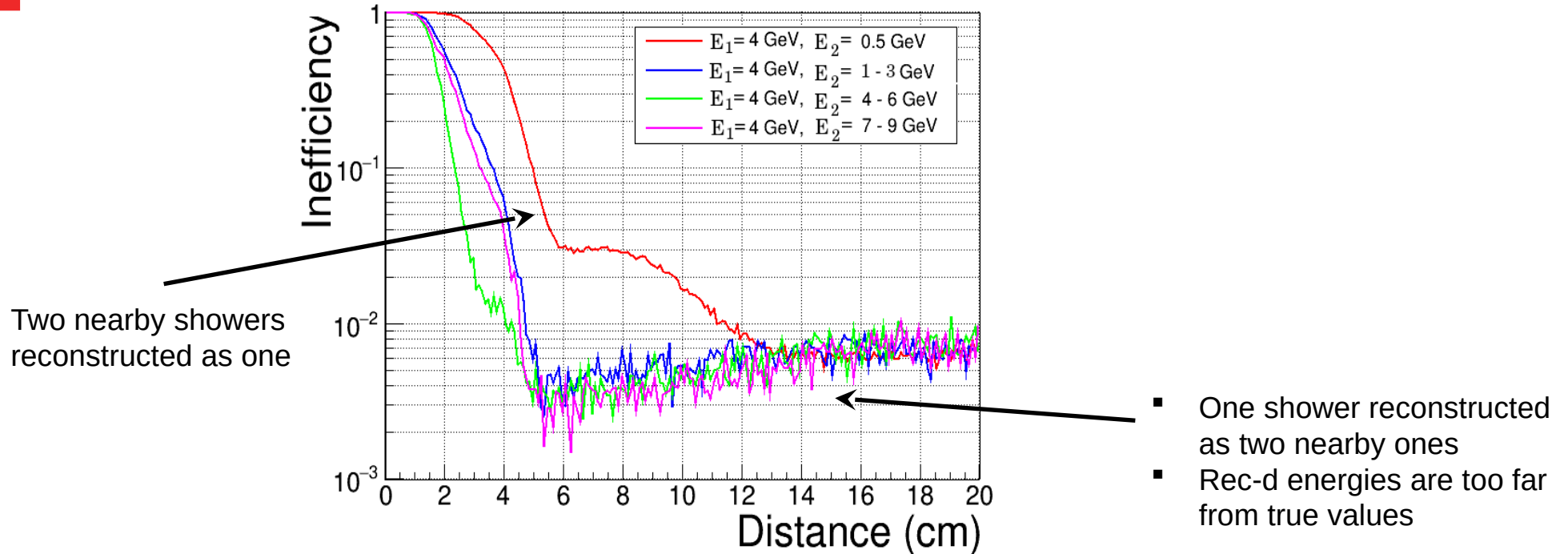
Efficiency



Inefficiency



# Primary Sources of Inefficiency





# Summary

- The separation efficiency approached the expected values: artificial shower splitting was at a sub-percent level, and separation efficiency was approximately 50% when the distance between showers was equal to the cell size.
- Improving one of these values through parameter adjustment is possible but tends to worsen the other.