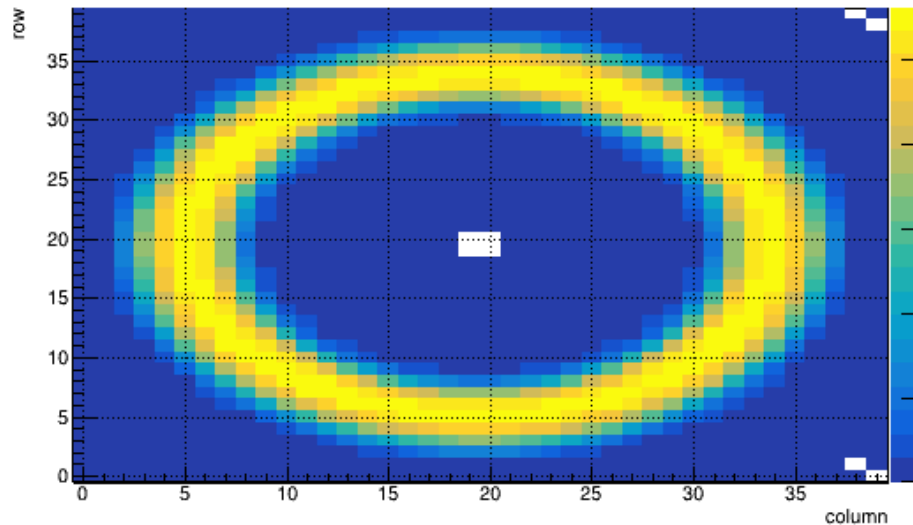


Shower separation studies

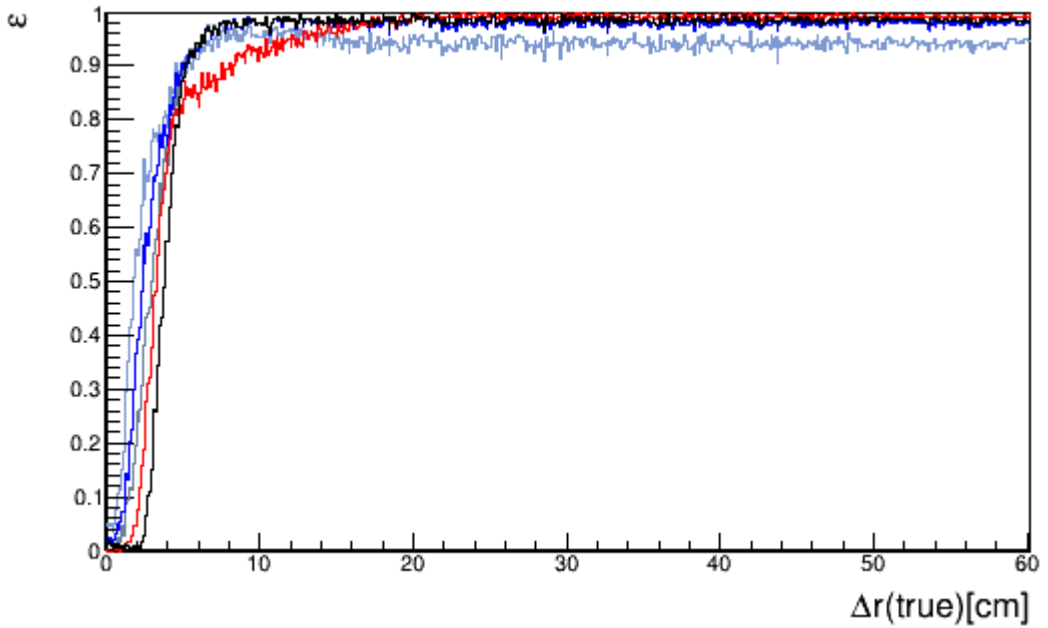
Simon Taylor /JLab

- Generated 2 photons $E_1, E_2 = \{0, 10\}$ GeV, $E_1 + E_2 = 10$ GeV
 - Lead tungstate region: $\theta = 3^\circ$
 - Lead glass region: $\theta = 8^\circ$
- Removed all detectors except for BCAL and FCAL, replaced air with vacuum

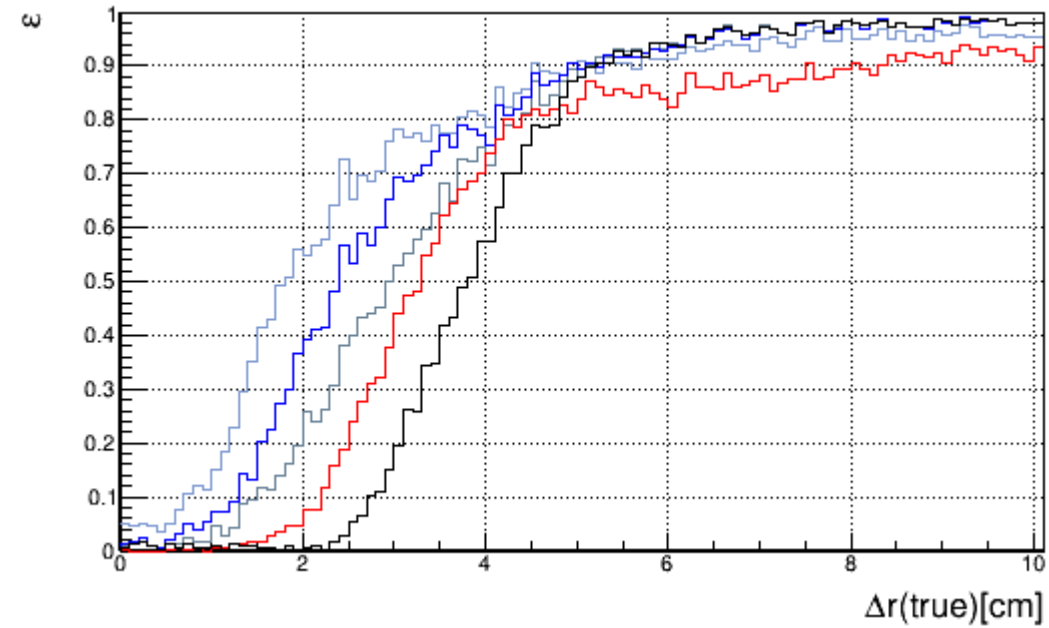
PWO channels



Two shower separation in ECAL



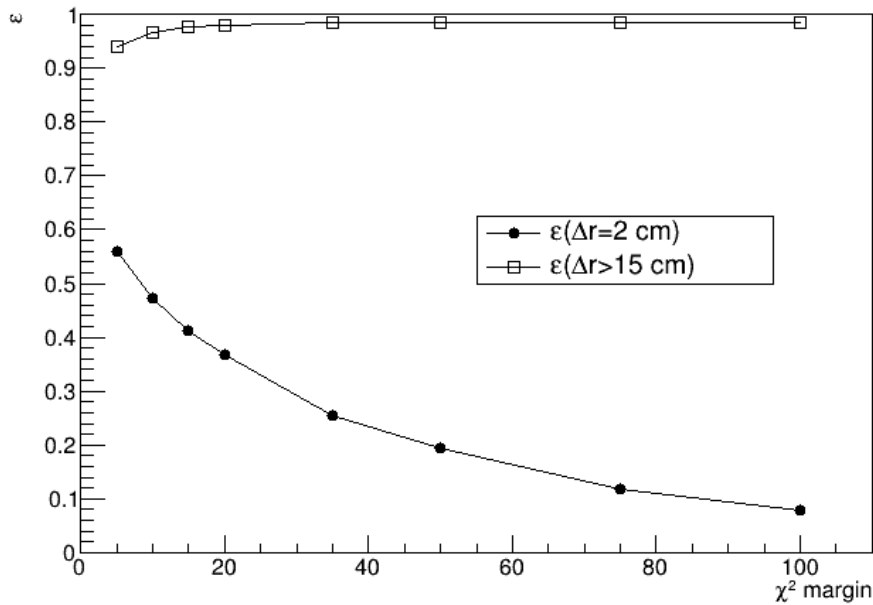
DA = Default Algorithm
IA = Island Algorithm



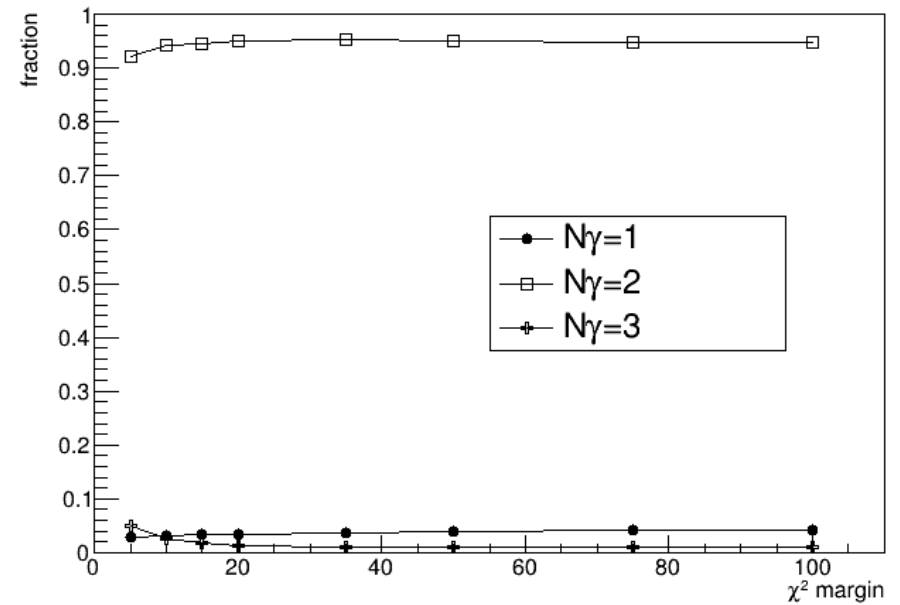
IA χ^2 margin=5
IA χ^2 margin=20
IA χ^2 margin=50
IA no splitting
DA

Two photon separation, continued

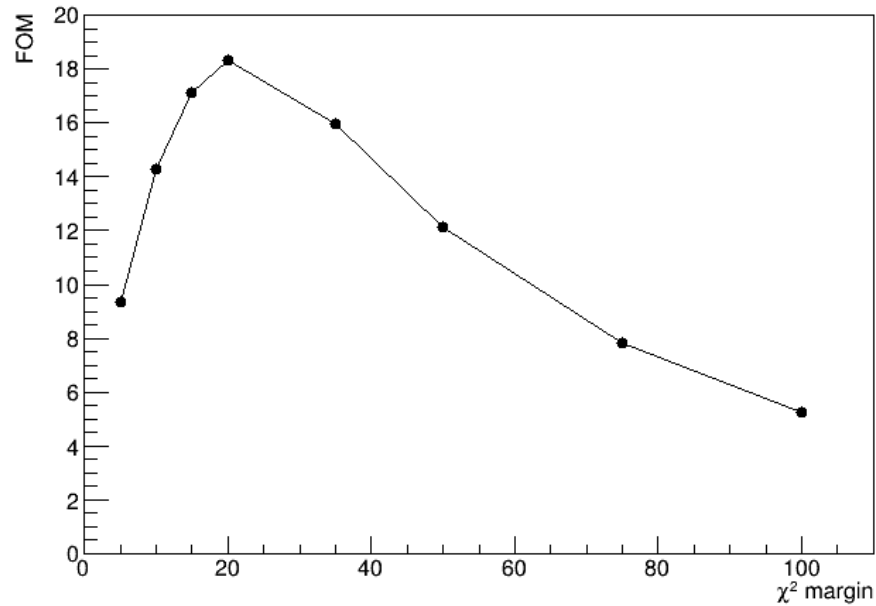
Efficiency dependence on χ^2 margin



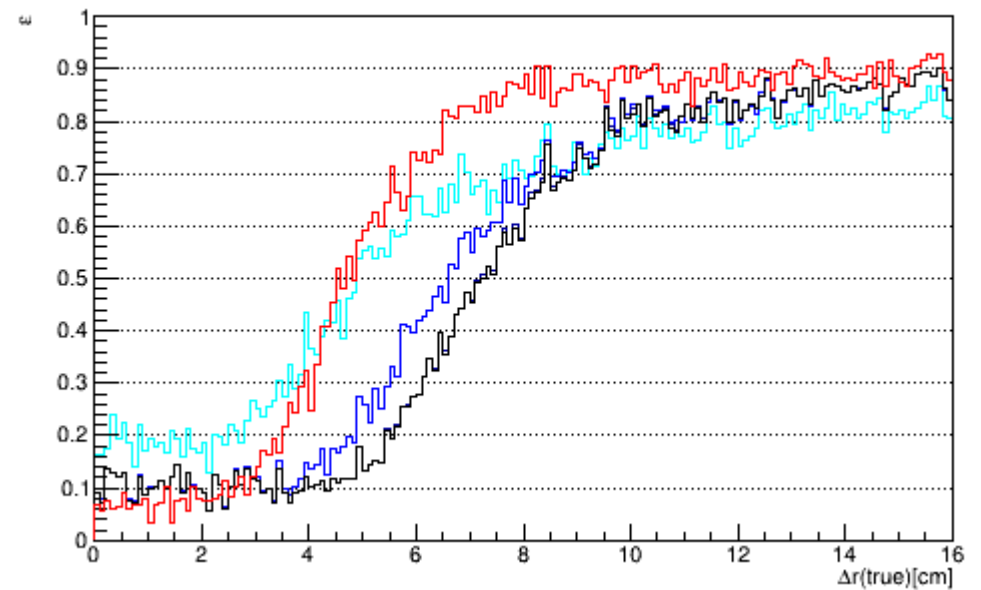
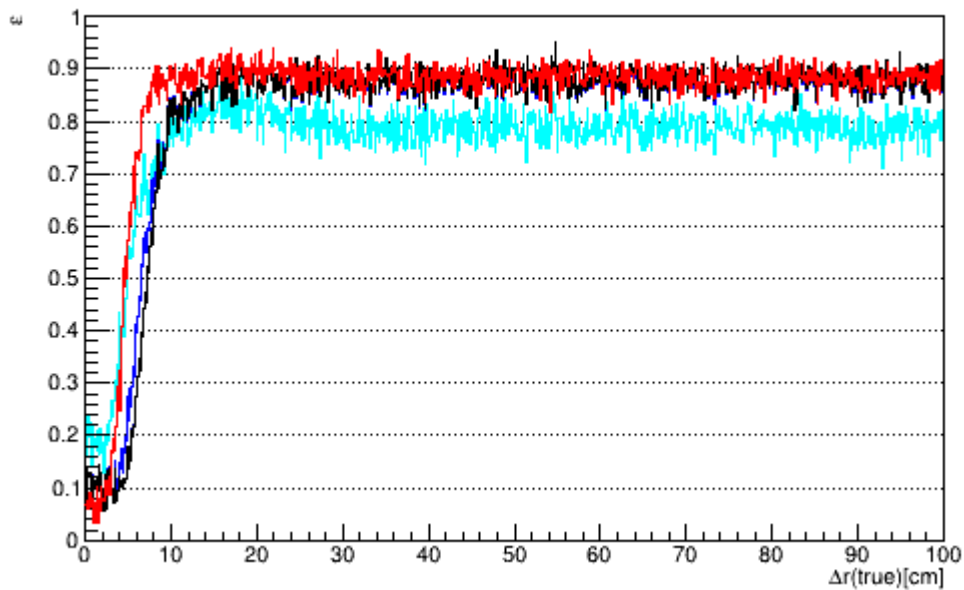
N_γ fraction dependence on χ^2 margin



FOM= $\epsilon(2\text{cm})/(1-\epsilon(\Delta r>15 \text{ cm}))$ dependence on χ^2 margin



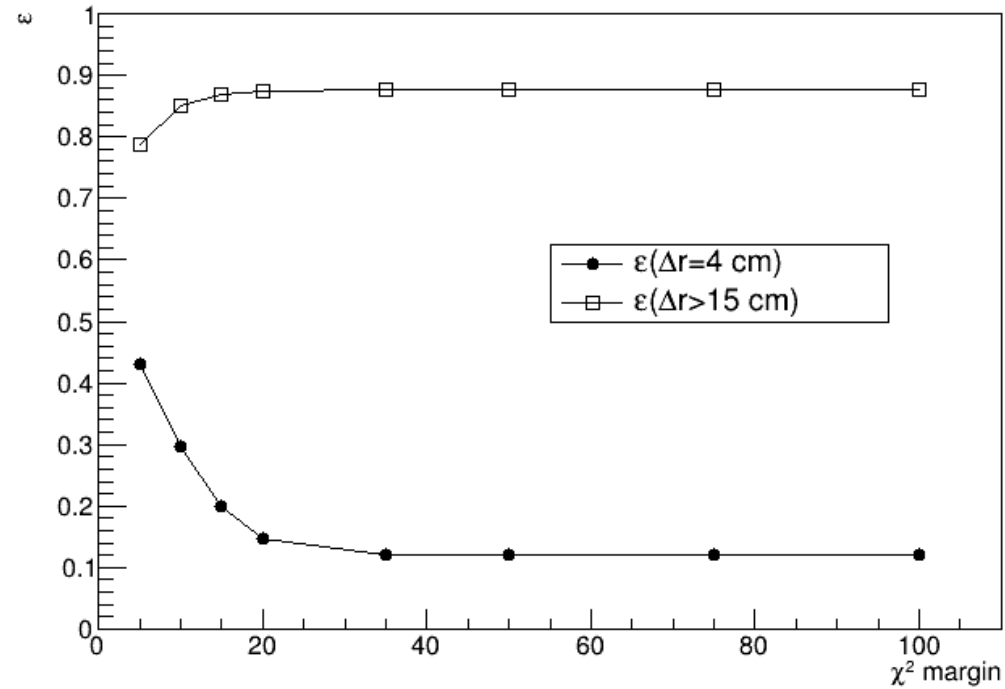
Two shower separation in LG



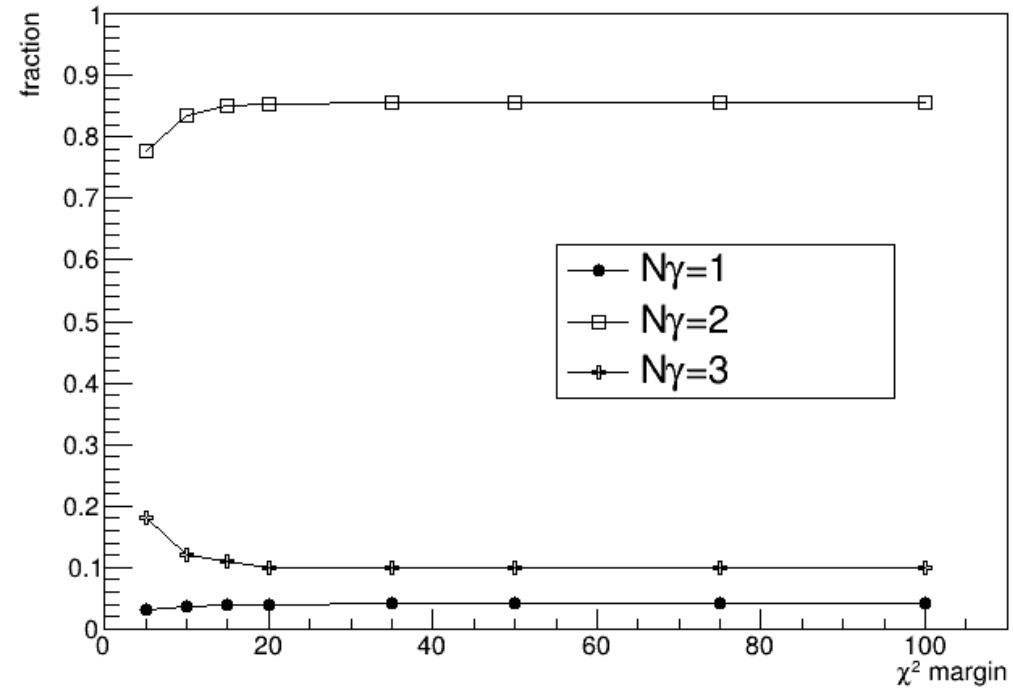
IA χ^2 margin=5
IA χ^2 margin=20
IA no splitting
DA

Two photon separation, continued

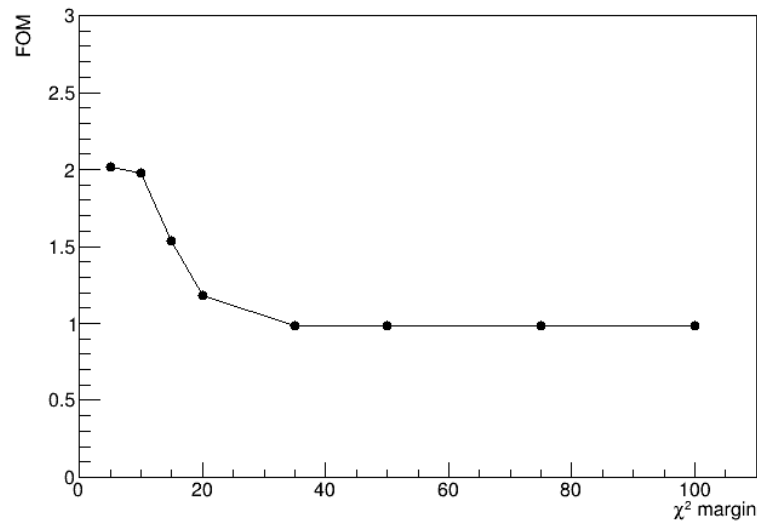
Efficiency dependence on χ^2 margin



N_γ fraction dependence on χ^2 margin

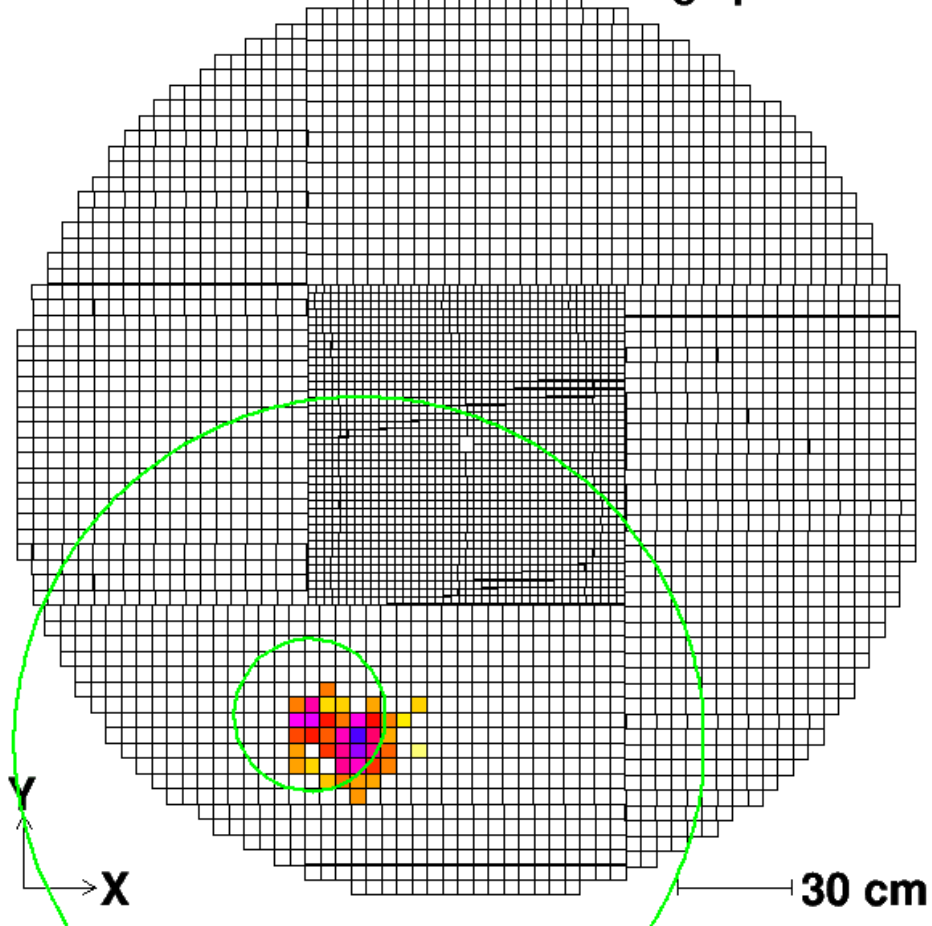


FOM= $\epsilon(4\text{cm})/(1-\epsilon(d>15 \text{ cm}))$ dependence on χ^2 margin

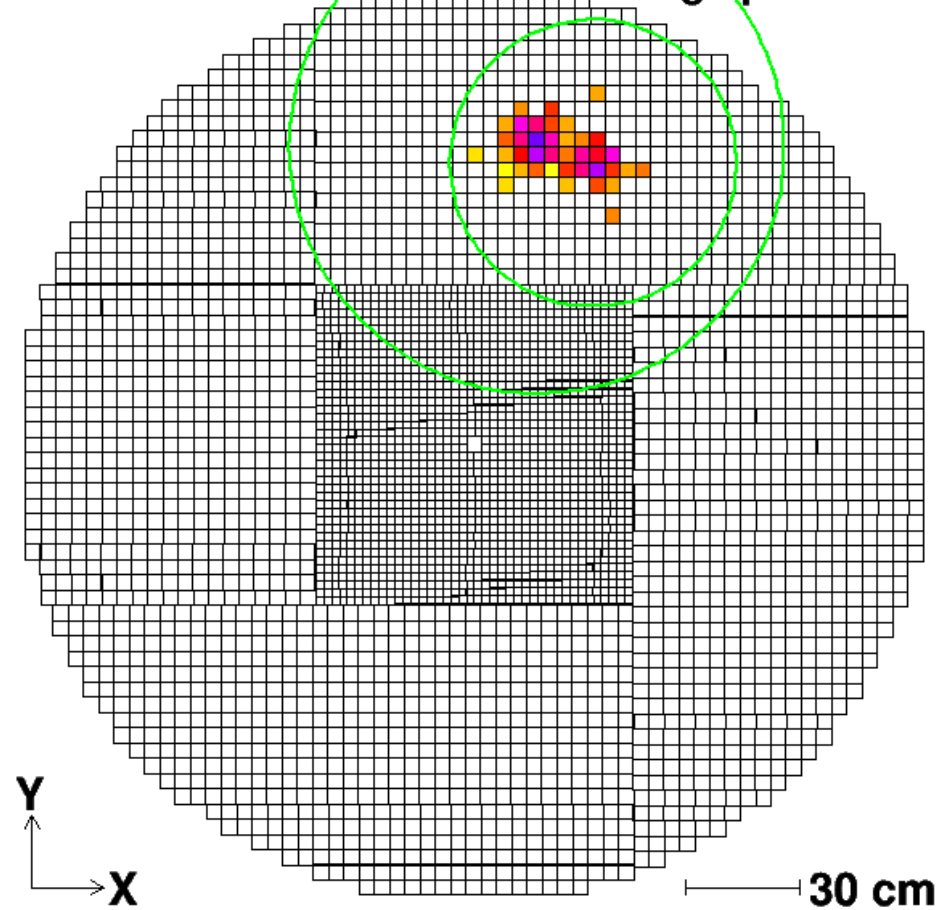


Examples of true separation

FCAL view from downstream looking upstream



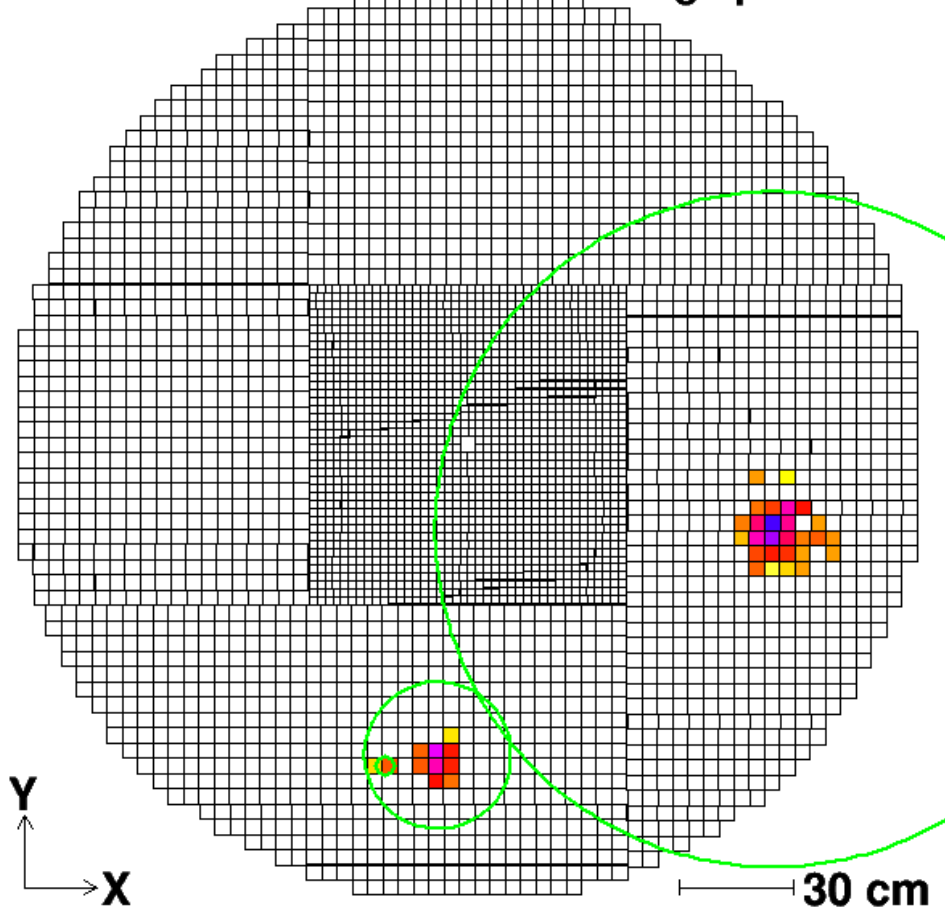
FCAL view from downstream looking upstream



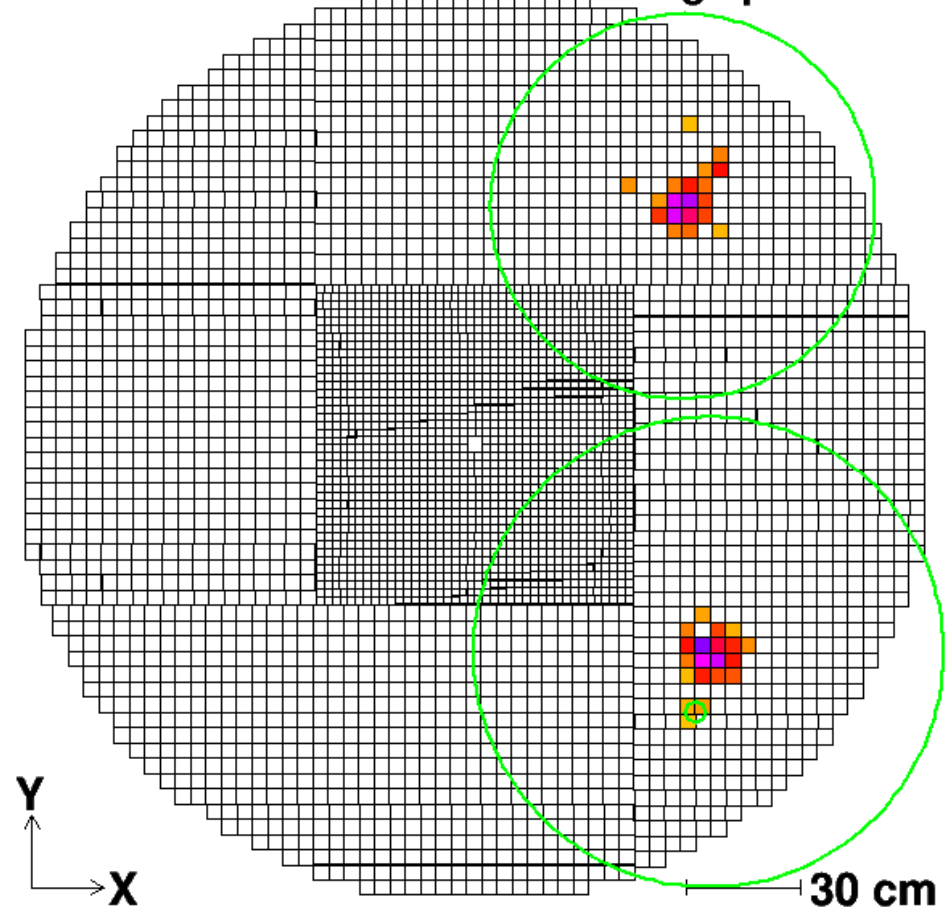
IA, χ^2 margin=20

Examples of true split-offs

FCAL view from downstream looking upstream



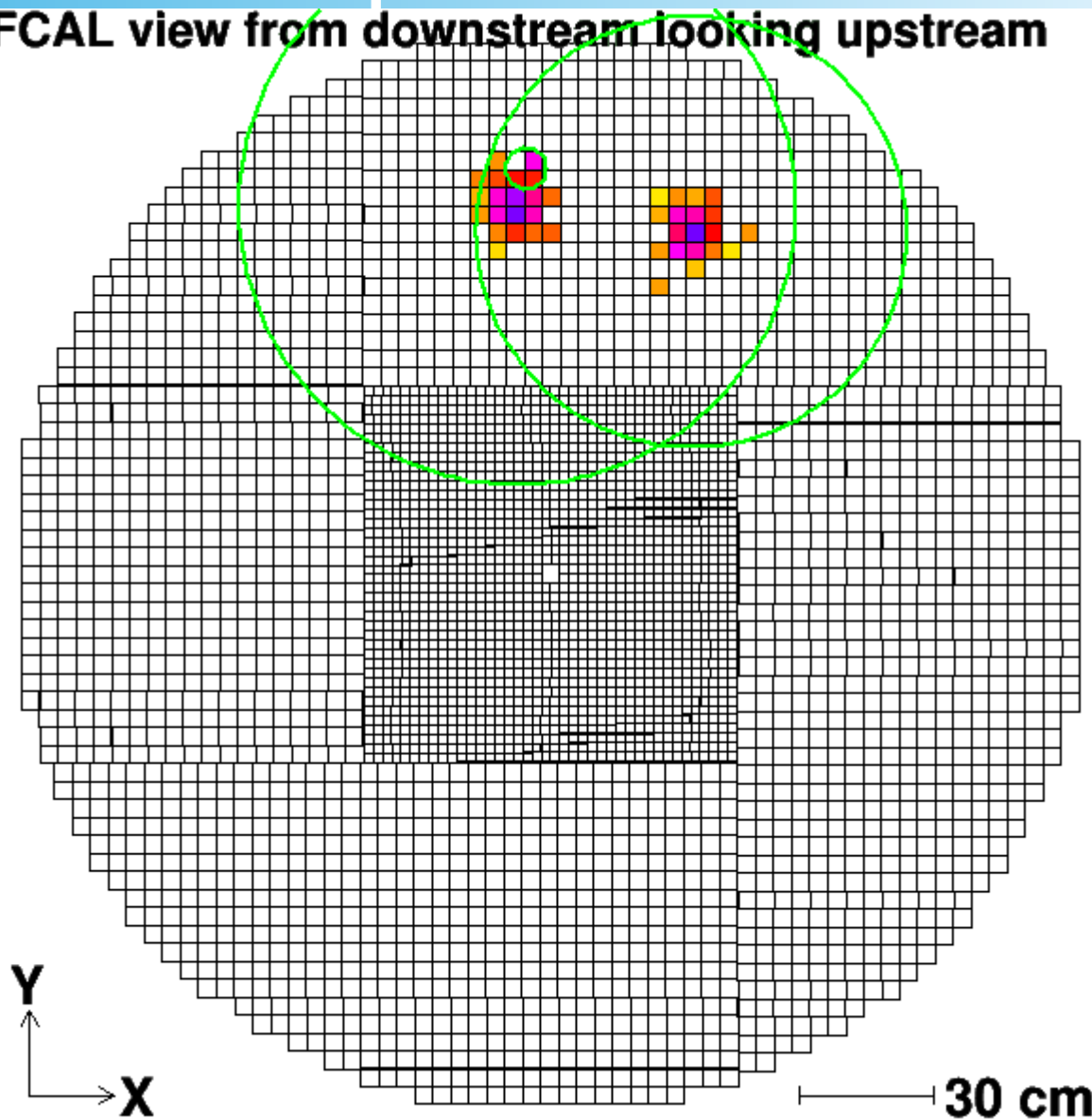
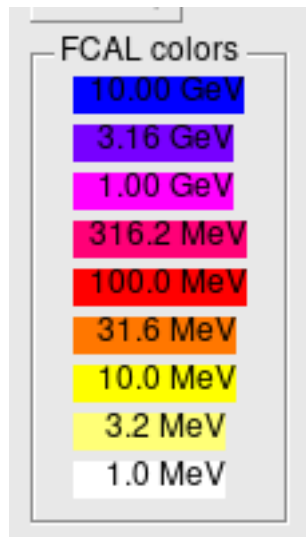
FCAL view from downstream looking upstream



IA, χ^2 margin=20

Possible true split-off

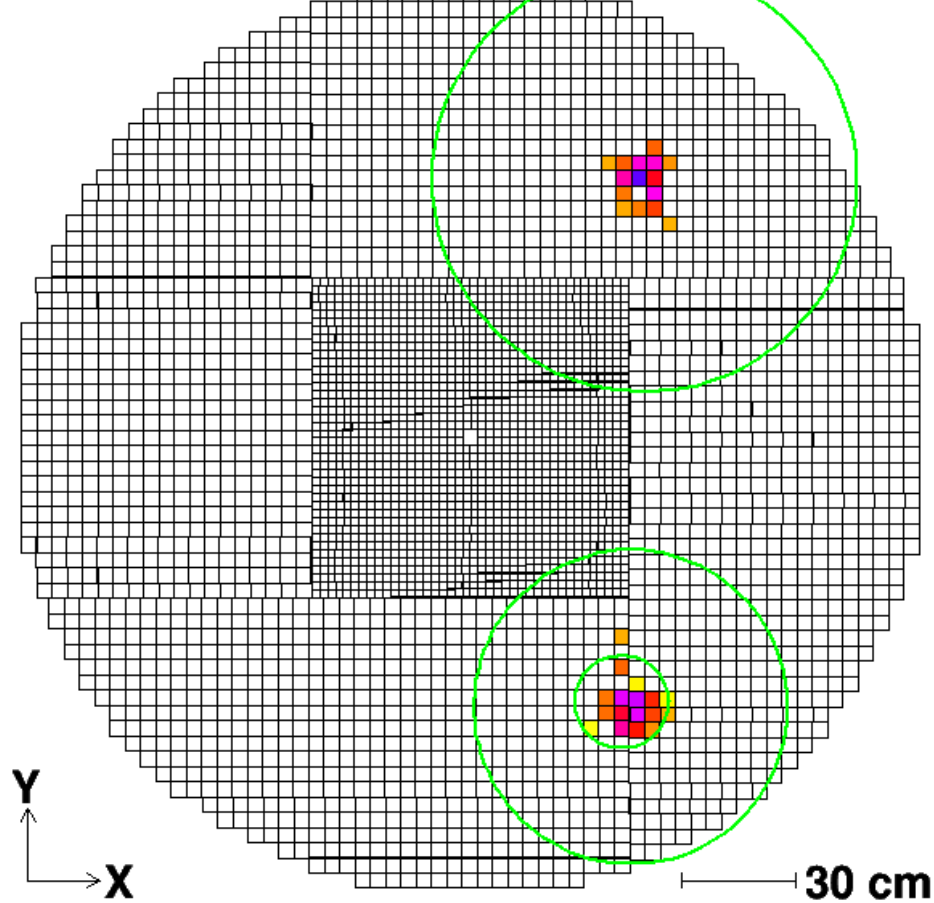
FCAL view from downstream looking upstream



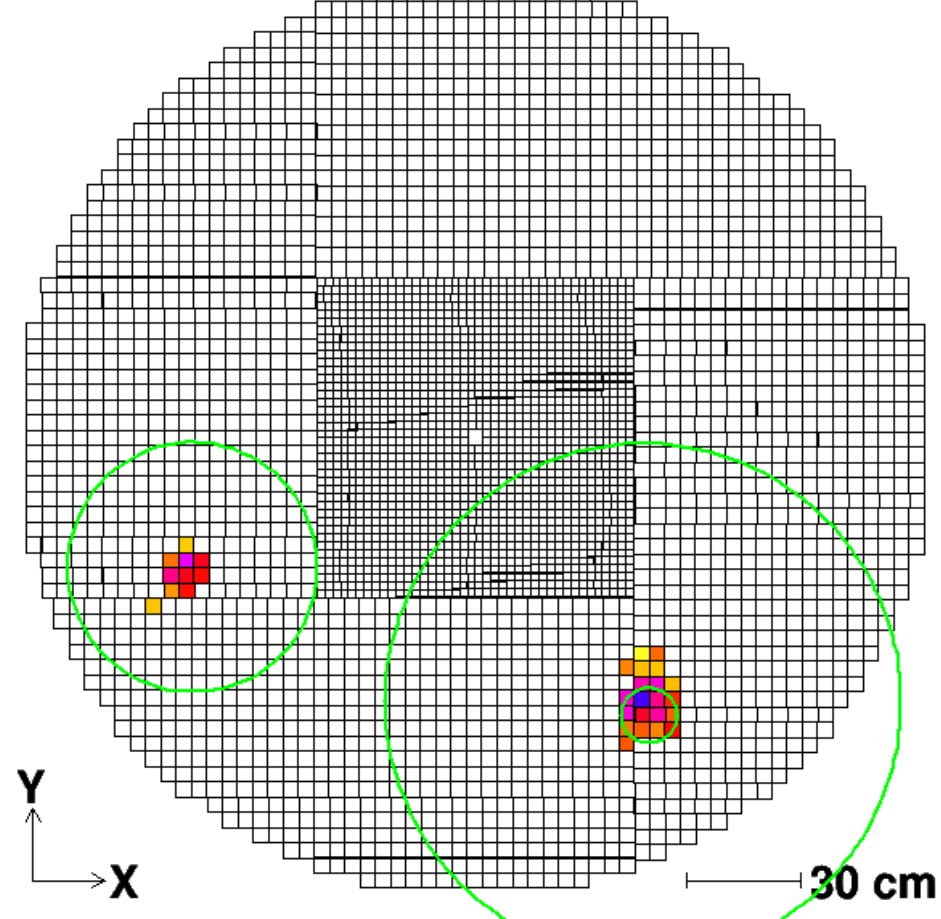
IA, χ^2 margin=20

Examples of false spit-offs

FCAL view from downstream looking upstream



FCAL view from downstream looking upstream



IA, χ^2 margin=20