

Disc DIRC

design status

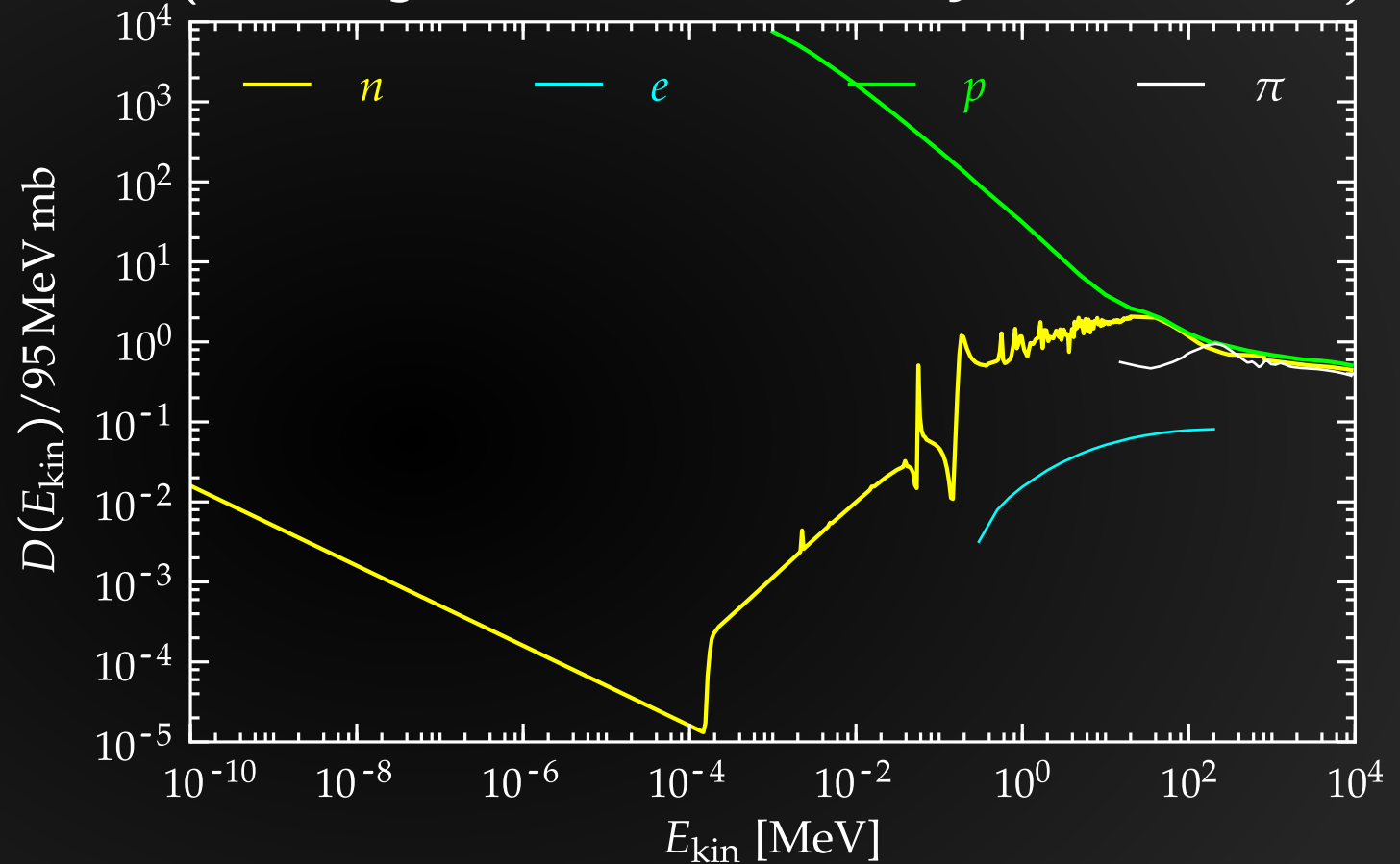
1 MeV neutron equivalent fluence

PandaROOT
Geant4/TGeo

NIEL scaling

extrapolation

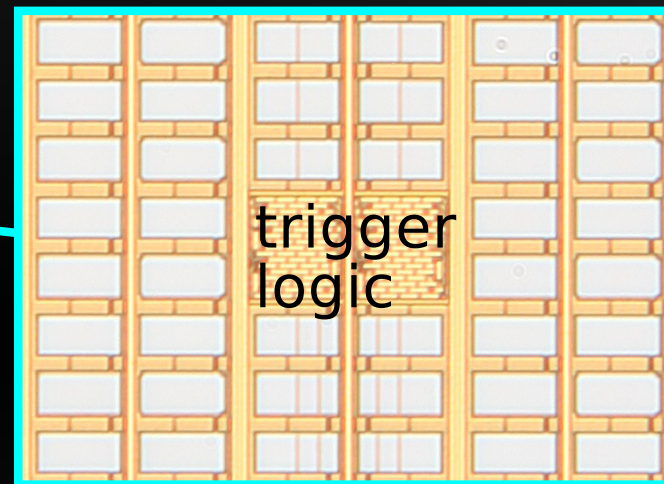
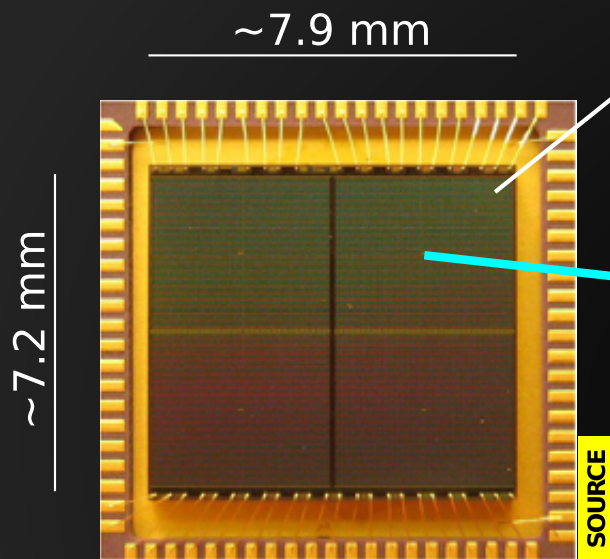
(Si damage function as advised by Lindstöm et al.)



$$n_{1 \text{ MeV}} \approx 14 \cdot 10^{10} / \text{cm}^2$$

Philips dSiPM

"pixel" = SPAD array (59 x 32 μm cells)



DLS-6400-22

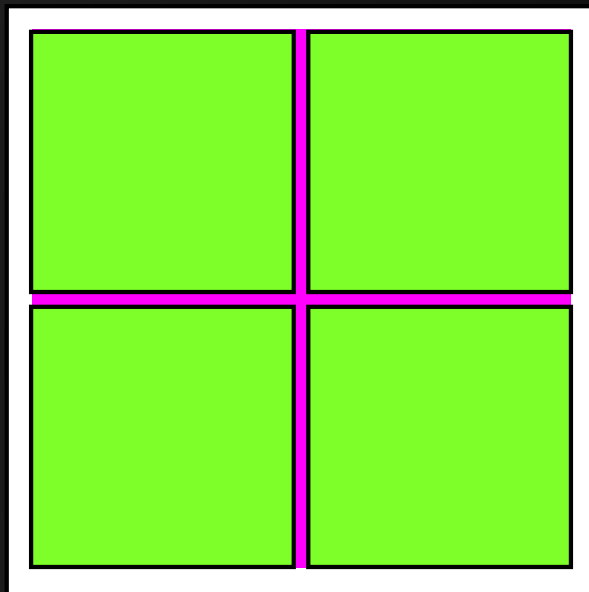
2 x 2 pixel

5396 cells / pixel

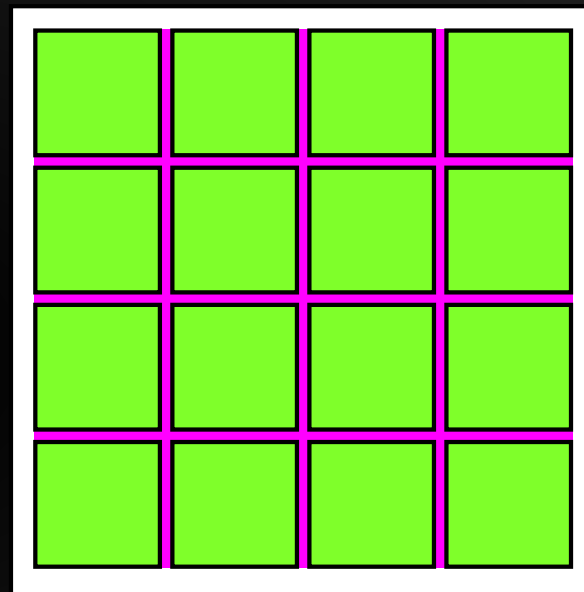
view of a pixel center

} ~ 500 cells / mm^2

x 1

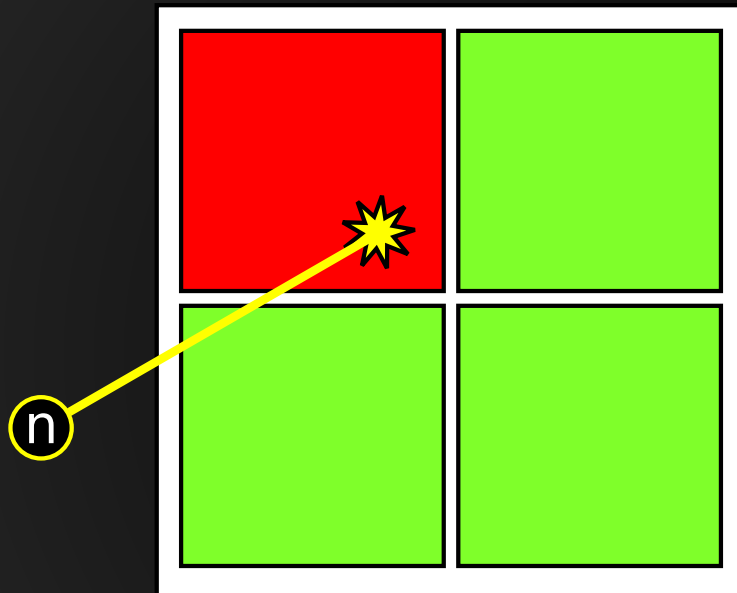


x 3

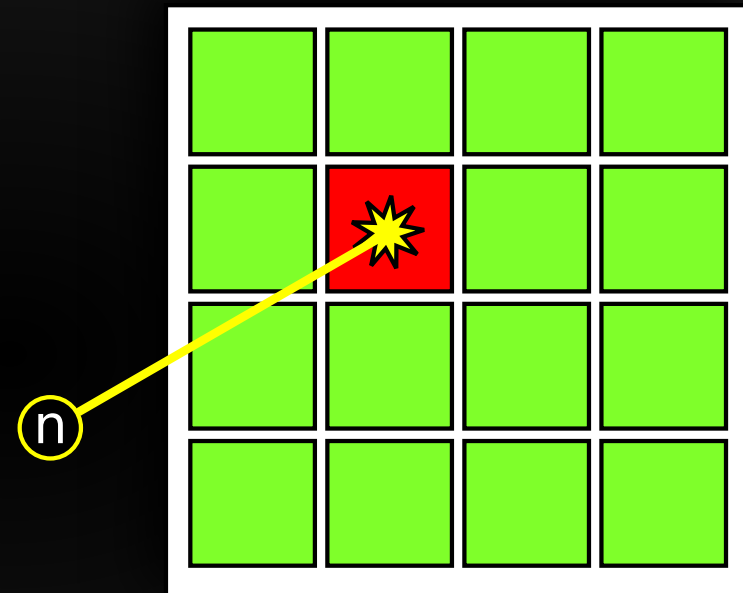


dead space vs granularity

25 %

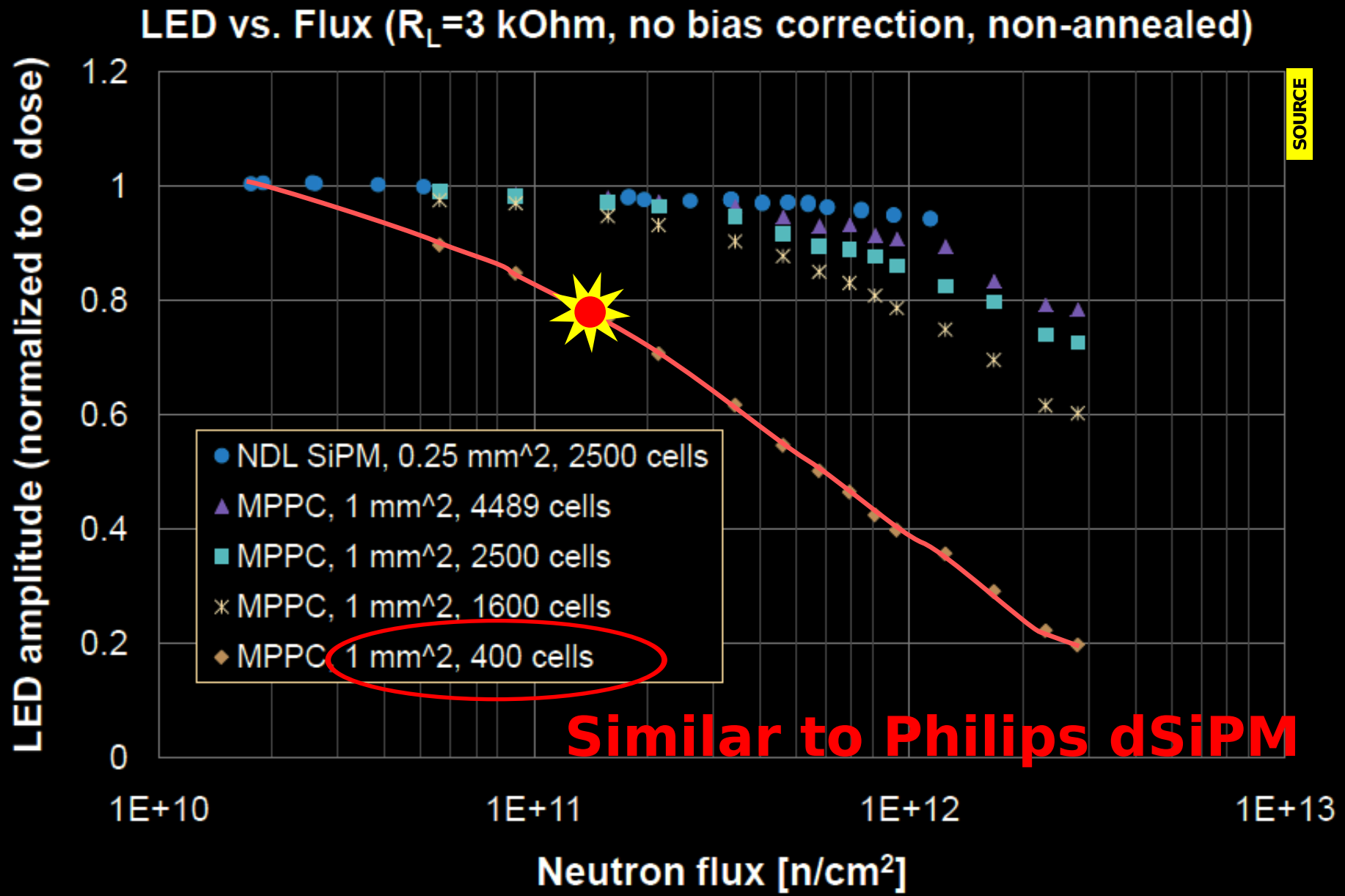


6.25 %



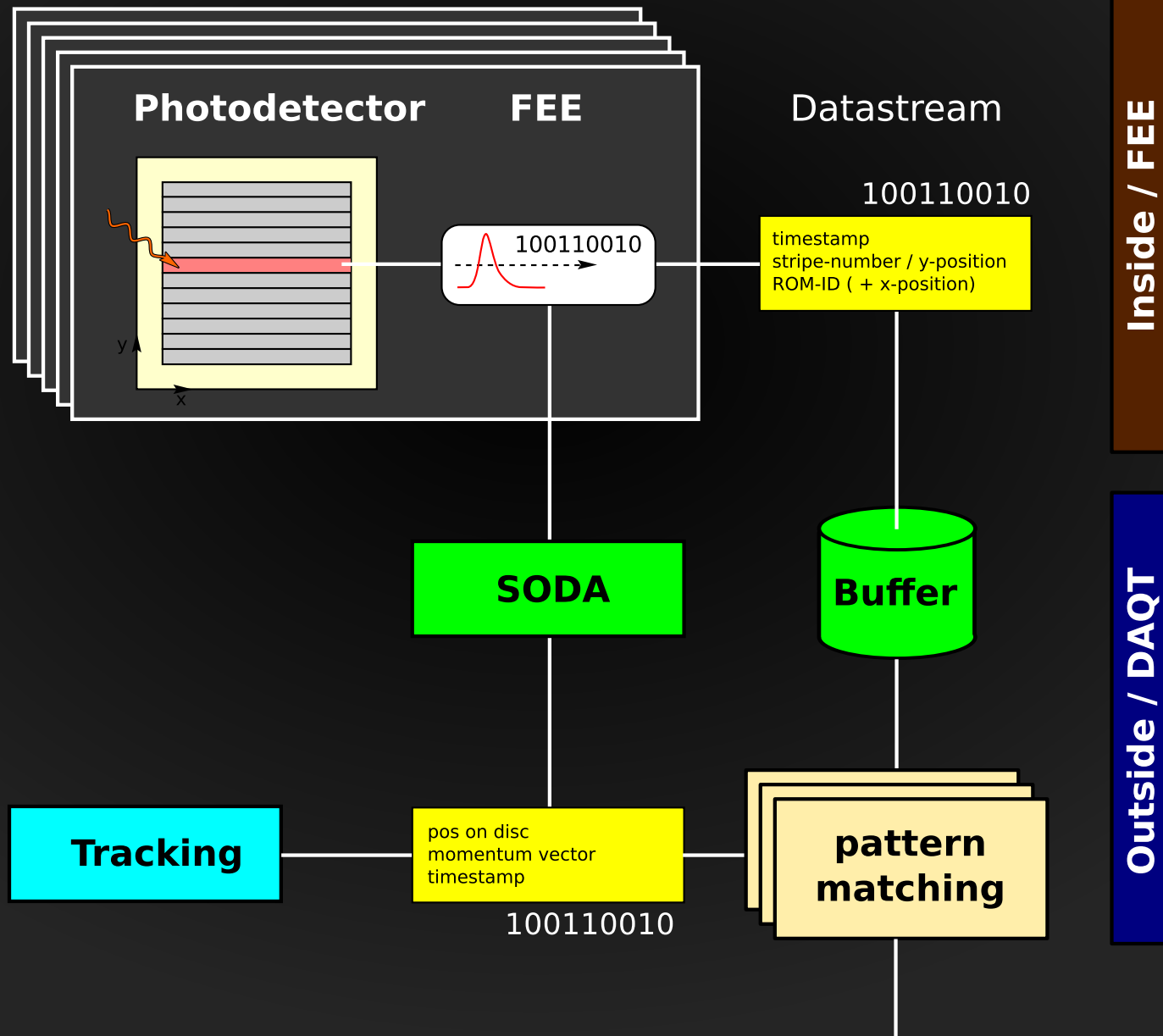
damage vs granularity

NDL SiPM & MPPC rad-damage



FEE/DAQ/Reconstruction scheme

Readout modules
(trigger-less & independent but synchronized)



FEE/DAQ/Reconstruction scheme

PandaRoot	dSiPM based	MCP based
detector geometry	100 %	100 %
digitization	100 %	80 %
time based simulation	100 %	100 %
reconstruction	100 %	20 %
tracking information	60 %	0 %

simulation status

Reconstruction in PandaROOT

