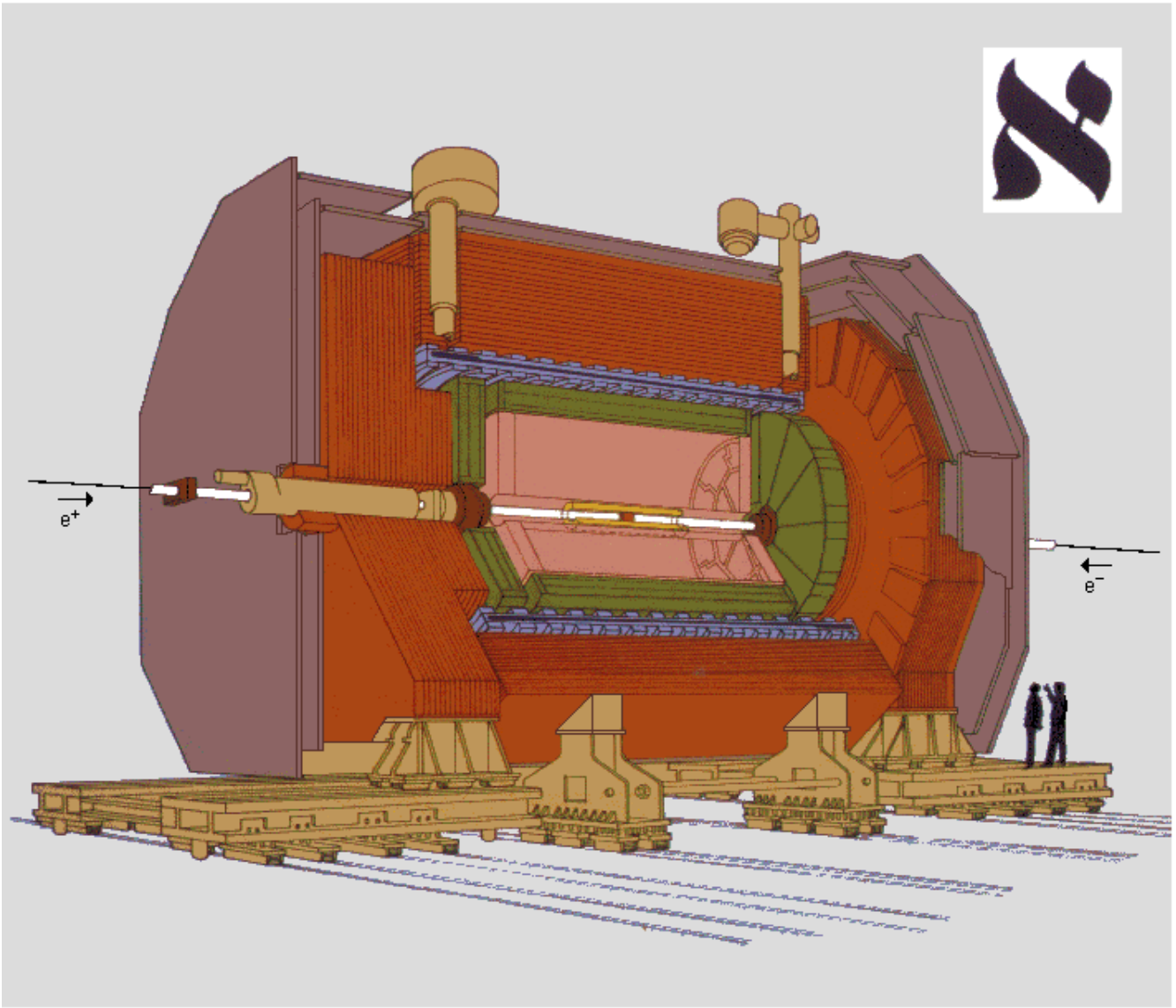
Experimental particle physics

esipap
European School of Instrumentation in Particle & Astroparticle Physics

B. analysis of event displays



Vertex Detector

Inner Tracking Chamber

Time Projection Chamber

Electromagnetic Calorimeter

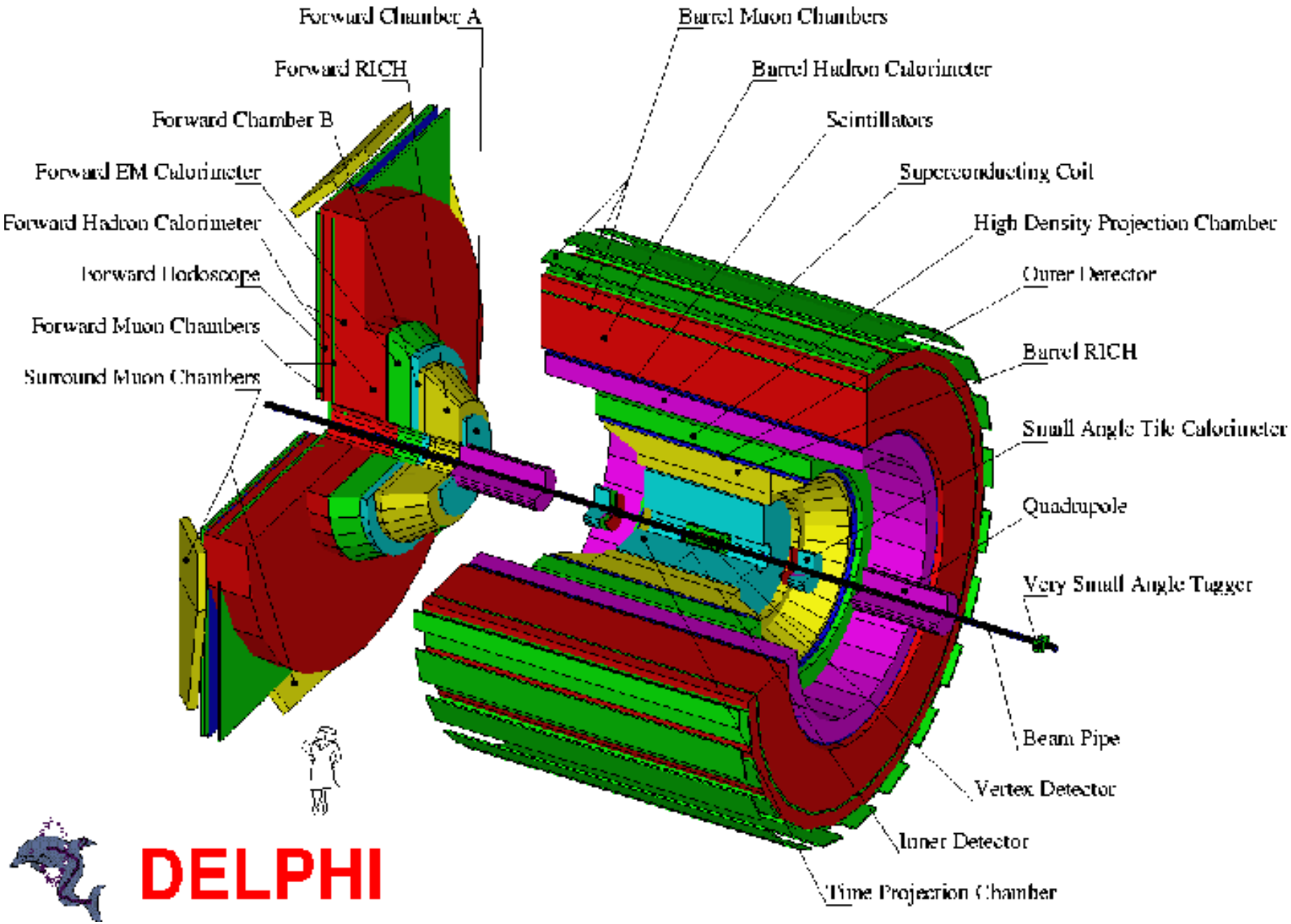
Superconducting Magnet Coil

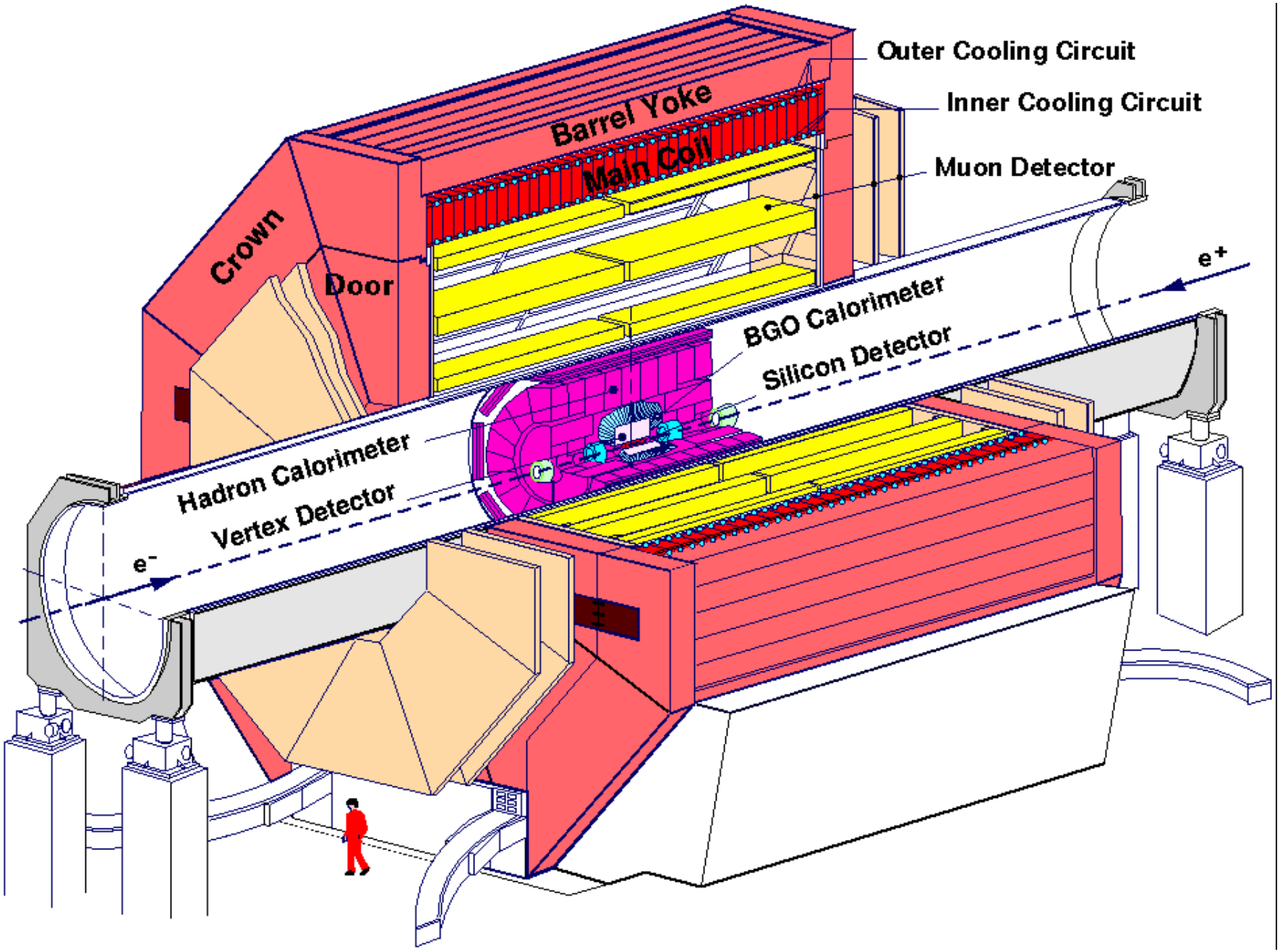
Hadron Calorimeter

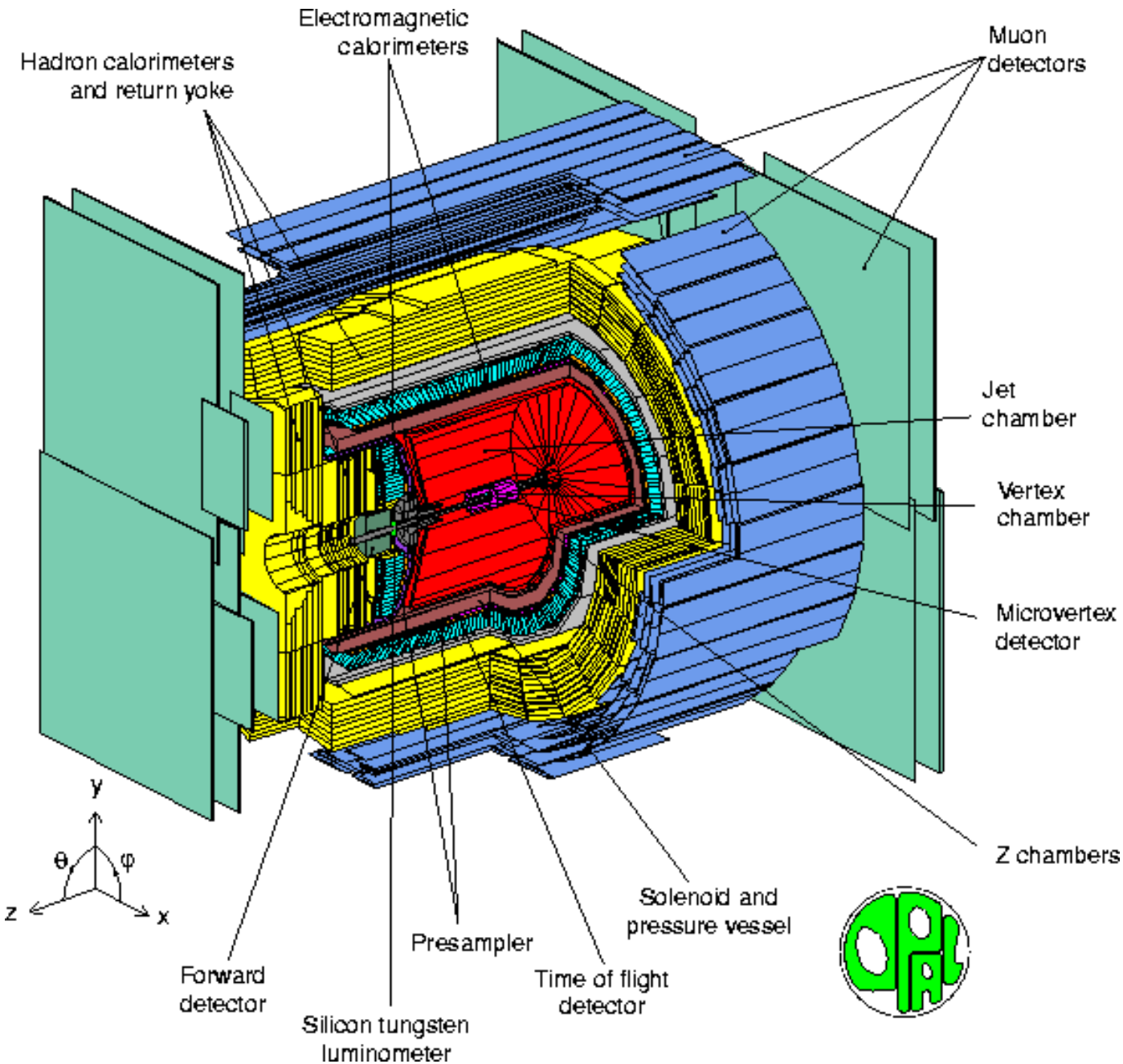
Muon Chambers

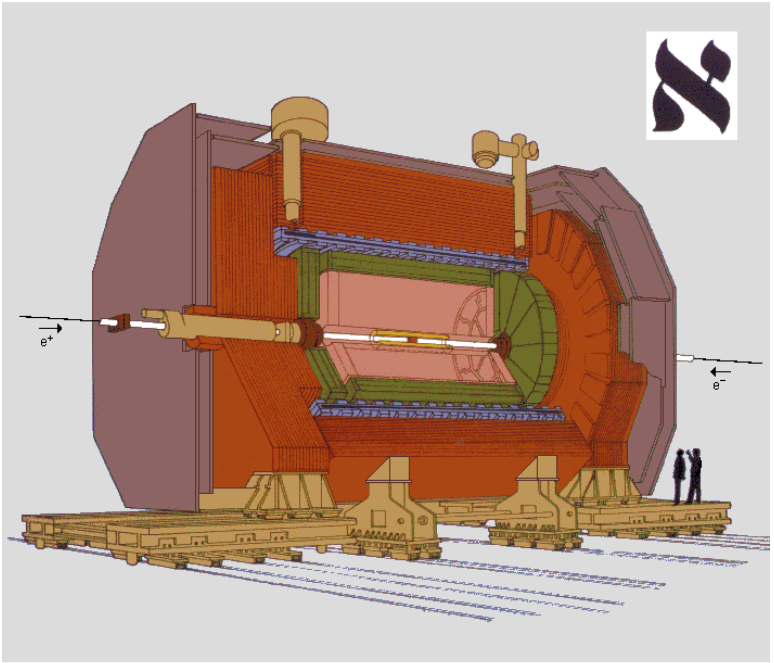
Luminosity Monitors

The ALEPH Detector


Forward Chamber A
Forward RICH
Forward Chamber B
Forward EM Calorimeter
Forward Hadron Calorimeter
Forward Hodoscope
Forward Muon Chambers
Surround Muon Chambers
Barrel Muon Chambers
Barrel Hadron Calorimeter
Scintillators
Superconducting Coil
High Density Projection Chamber
Outer Detector
Barrel RICH
Small Angle Tile Calorimeter
Quadrupole
Very Small Angle Tagger
Beam Pipe
Vertex Detector
Inner Detector
Time Projection Chamber
DELPHI

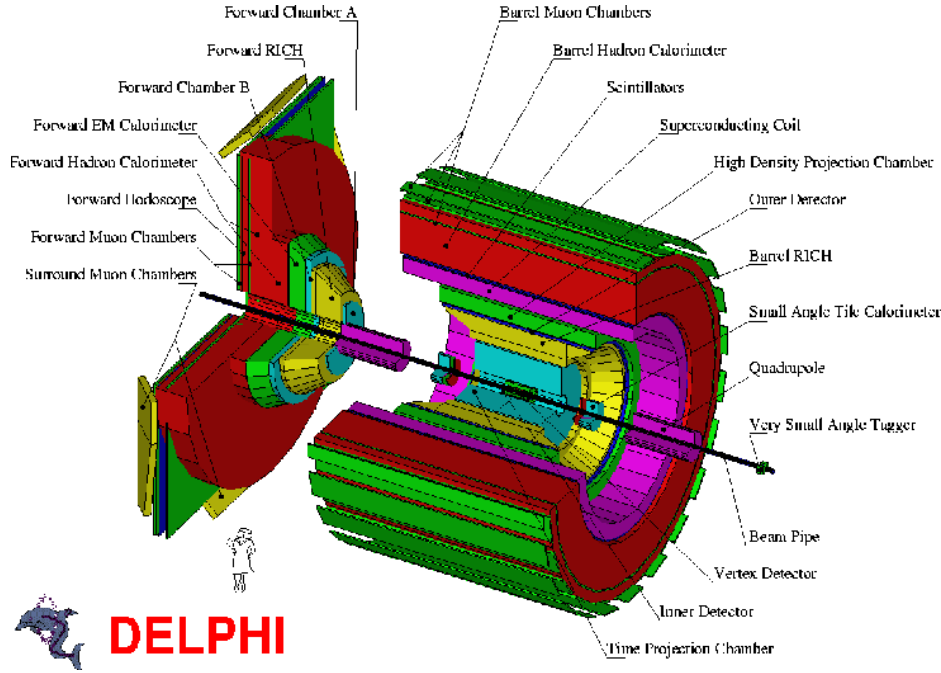

Outer Cooling Circuit
Inner Cooling Circuit
Muon Detector
Barrel Yoke
Main Coil
Crown
Door
e+
BGO Calorimeter
Silicon Detector
Hadron Calorimeter
Vertex Detector
e-

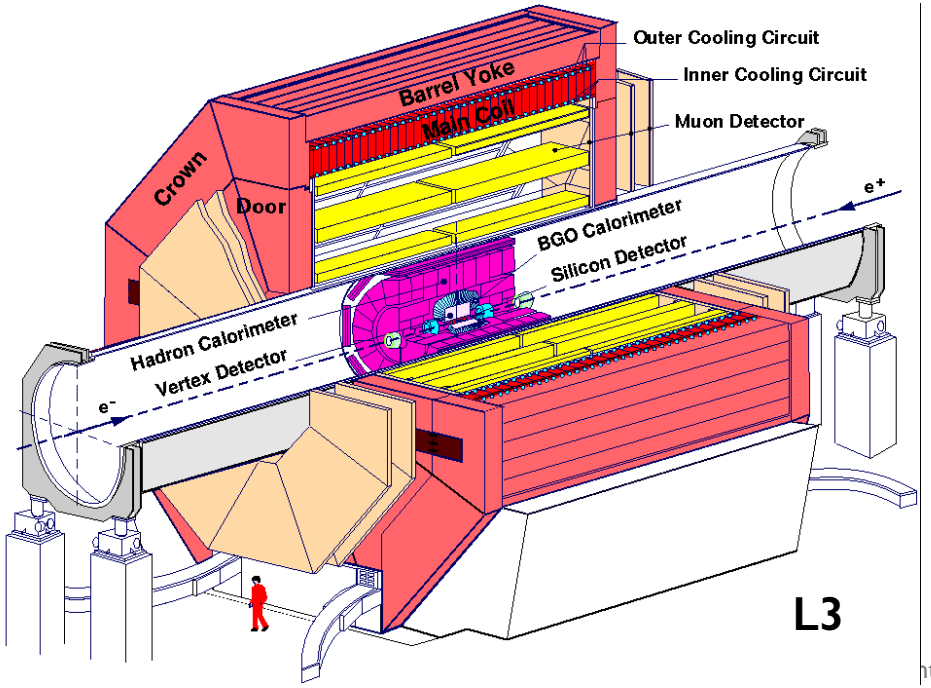

Electromagnetic calorimeters
Hadron calorimeters and return yoke
Muon detectors
Jet chamber
Vertex chamber
Microvertex detector
Z chambers
Solenoid and pressure vessel
Presampler
Time of flight detector
Forward detector
Silicon tungsten luminometer
y
θ
φ
z
x

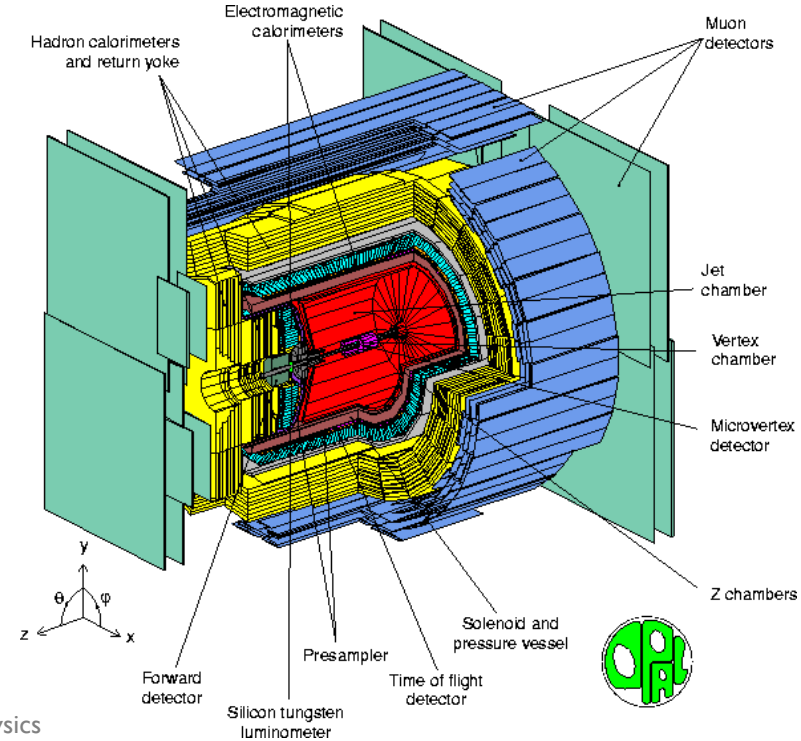


- Vertex Detector
- Inner Tracking Chamber
- Time Projection Chamber
- Electromagnetic Calorimeter
- Superconducting Magnet Coil
- Hadron Calorimeter
- Muon Chambers
- Luminosity Monitors

The ALEPH Detector



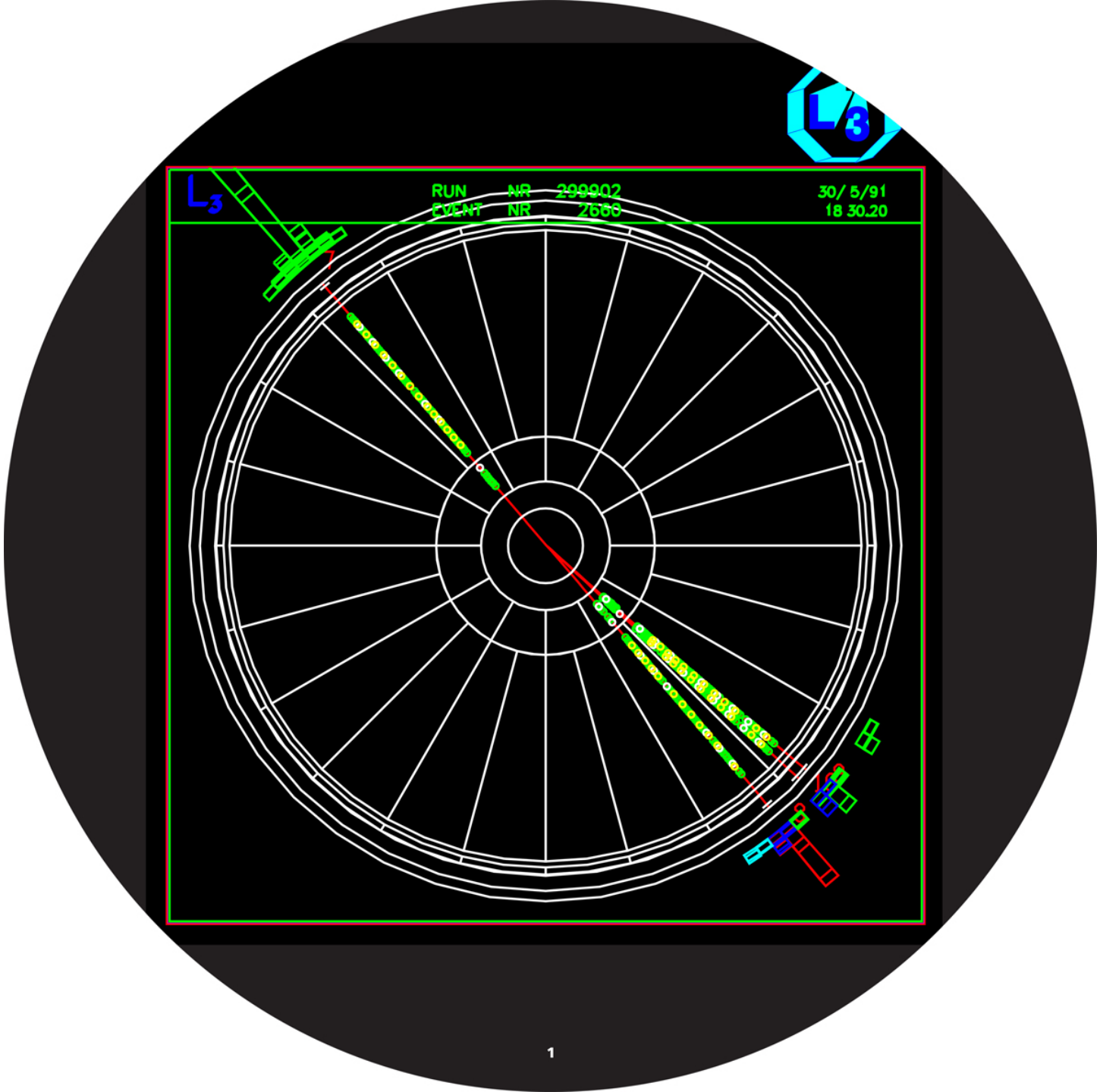




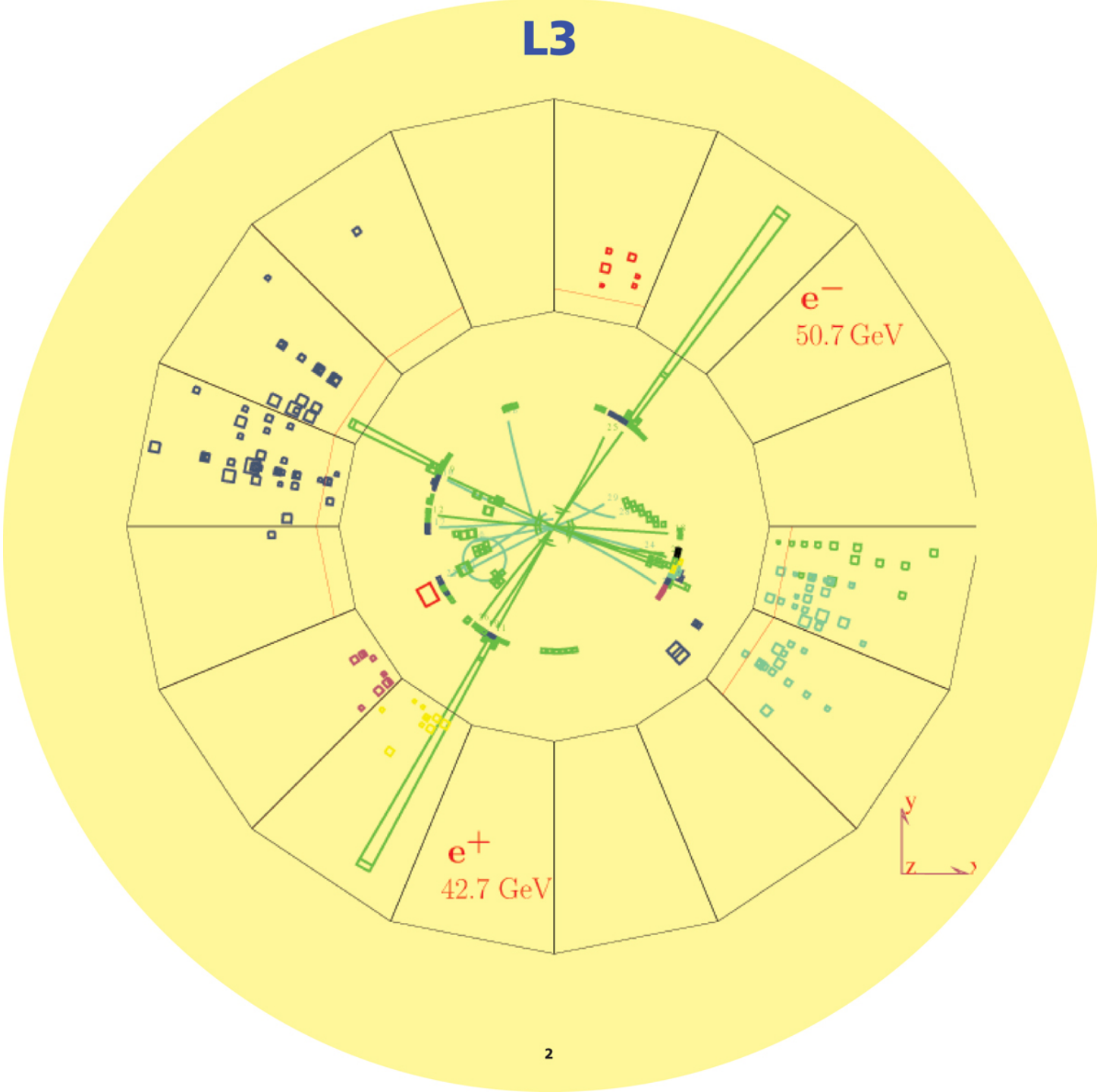
Event display game

A	$Z \to e^+e^-$
B	$Z \to \mu^+\mu^-$
C	$Z \to \tau^+\tau^-$
D	$Z \to q\bar{q}$
E	$Z \to q\bar{q}g$
F	$ZZ \to e^+e^-\mu^+\mu^-$
G	$ZZ \to e^+e^-q\bar{q}$
H	$ZZ \to \mu^+\mu^-q\bar{q}$

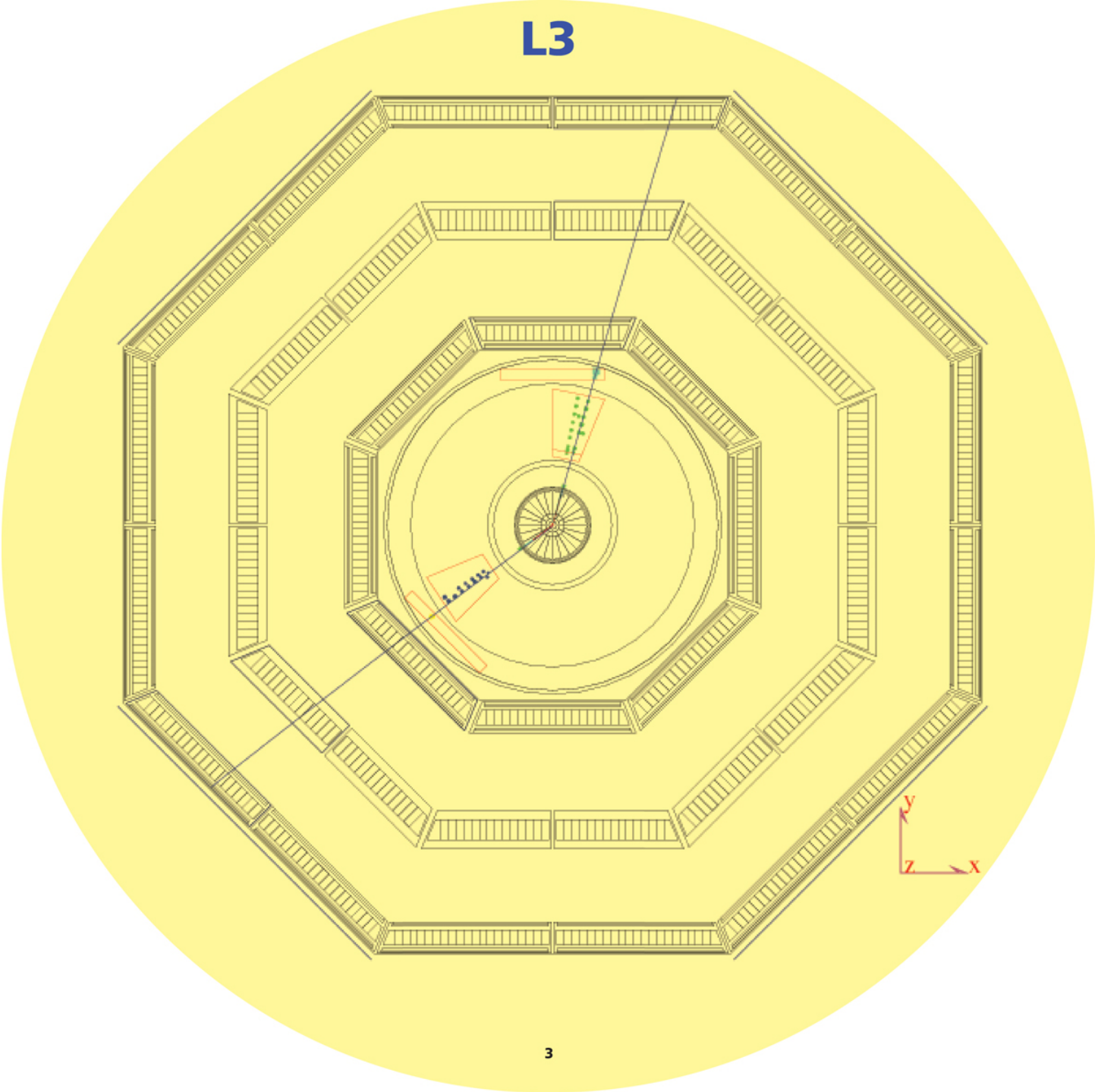
I	$WW \to e\nu\mu\nu$
L	$WW \to \mu\nu\mu\nu$
M	$WW \to \tau\nu\tau\nu$
N	$WW \to \tau\nu\mu\nu$
O	$WW \to e\nu q\bar{q}$
P	$WW \to \mu\nu q\bar{q}$
Q	$WW \to \tau\nu q\bar{q}$
R	$WW \to q\bar{q}q\bar{q}$


L3
L3
RUN NR 299902
EVENT NR 2668
30/ 5/91
18 30.20
1

2

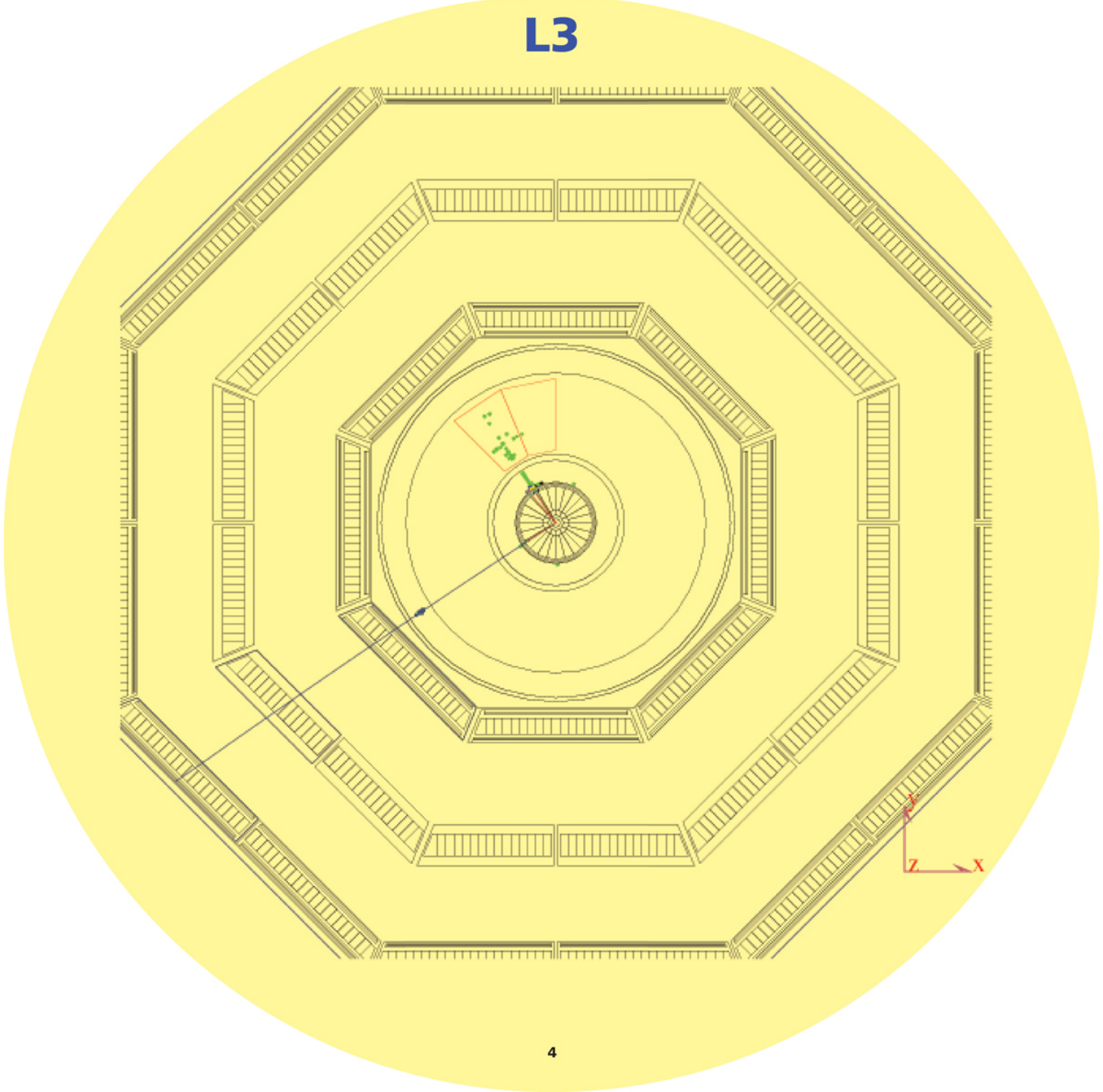


3

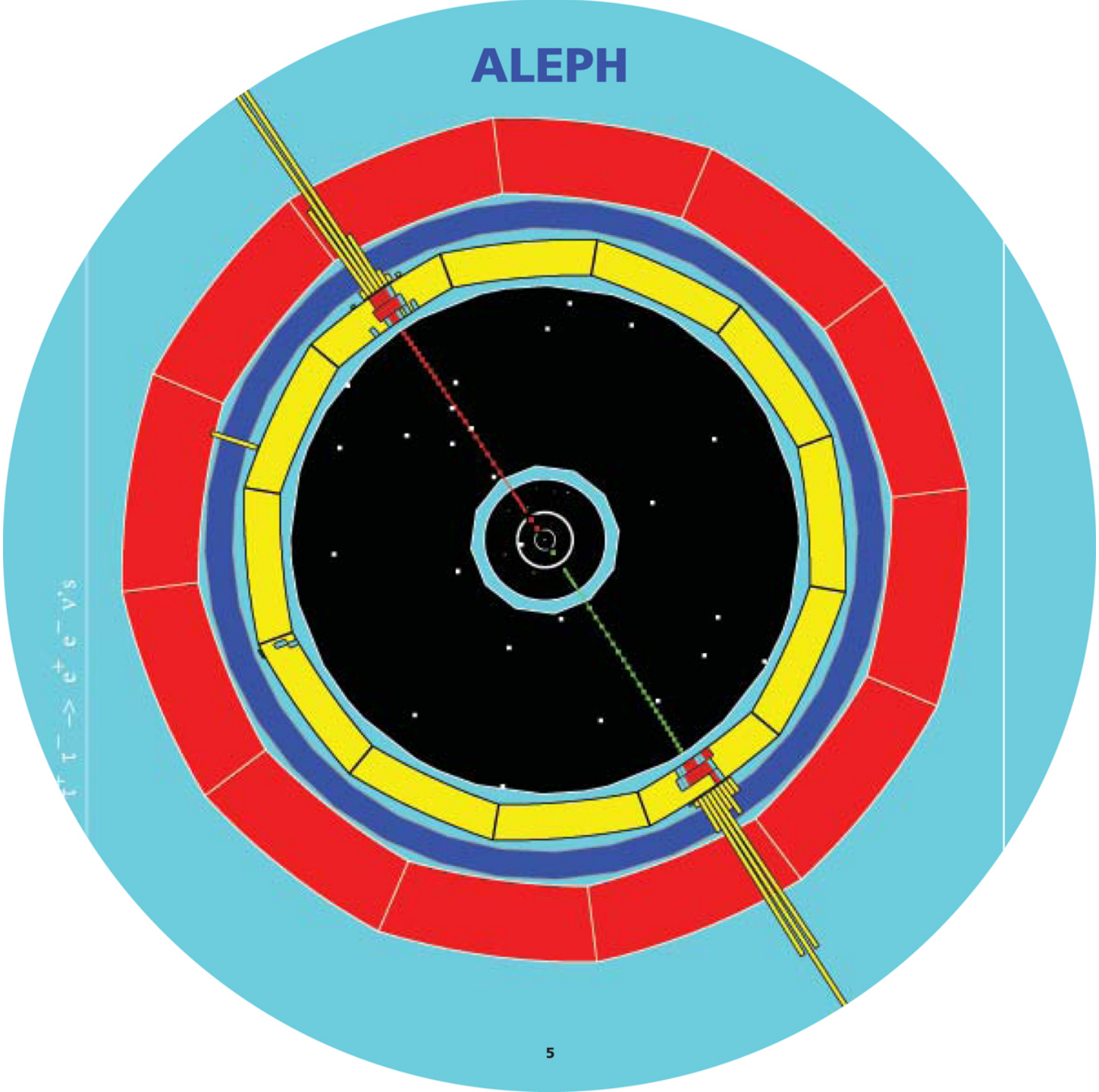


4

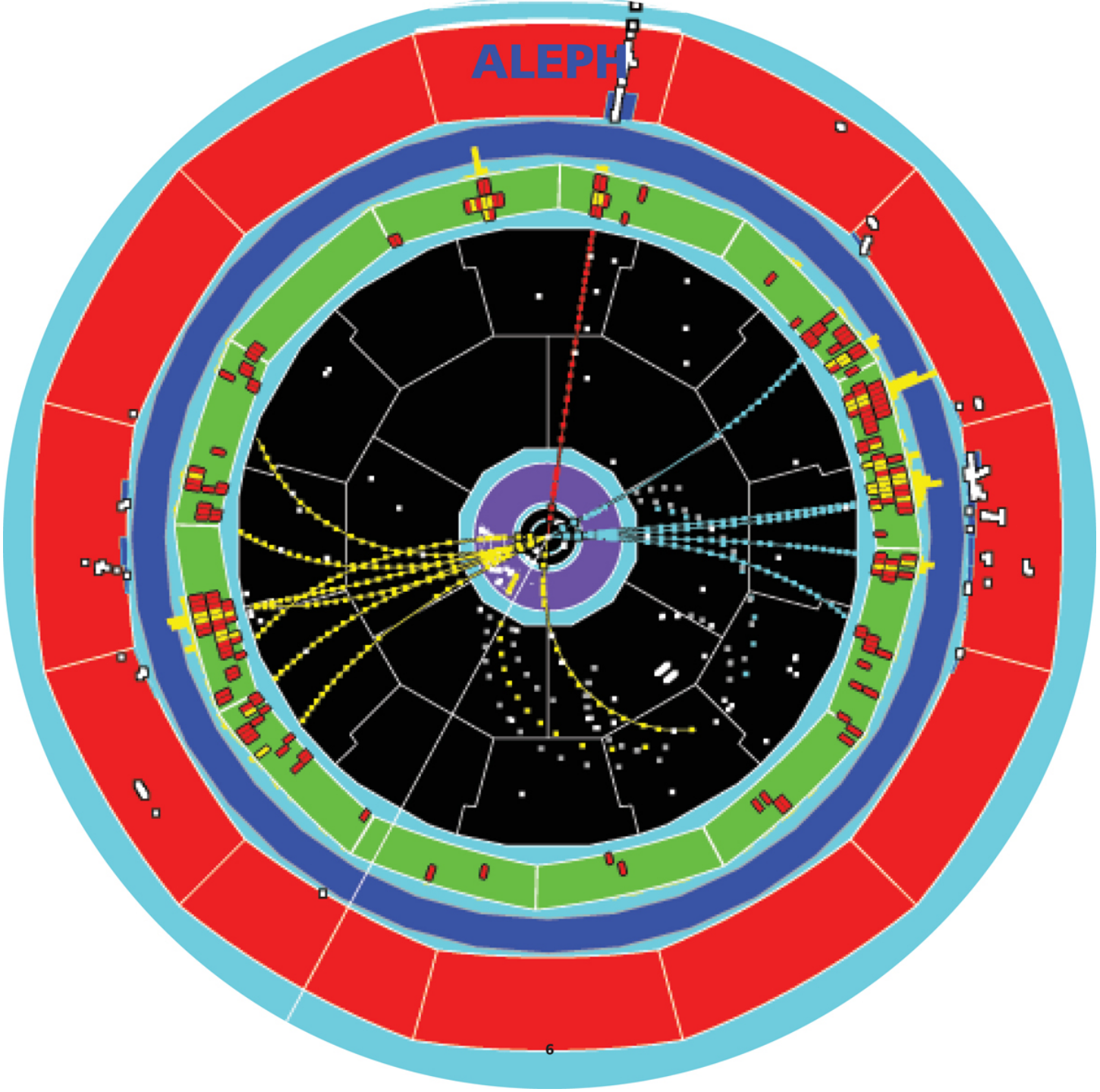
L3



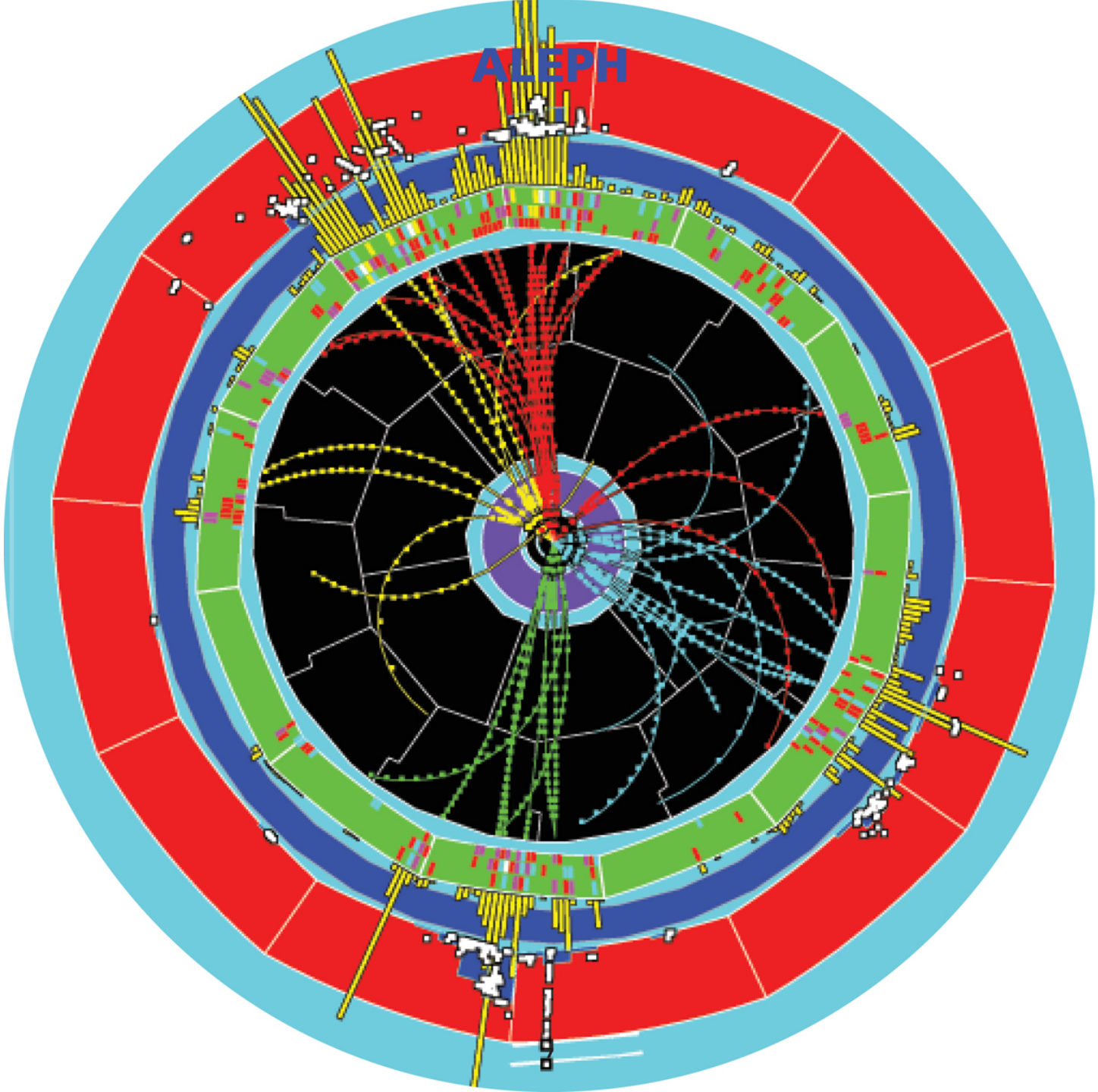
5



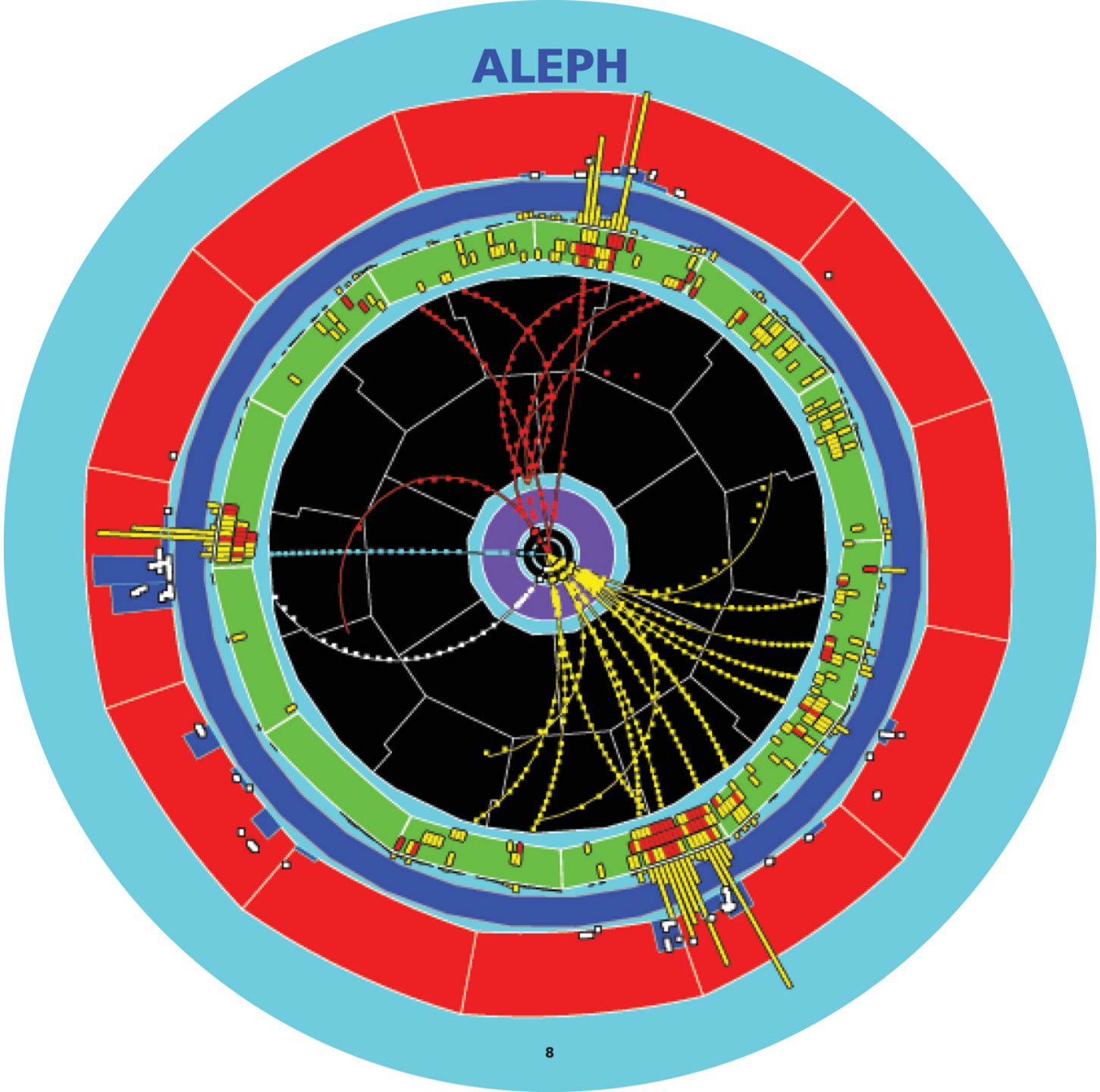
6



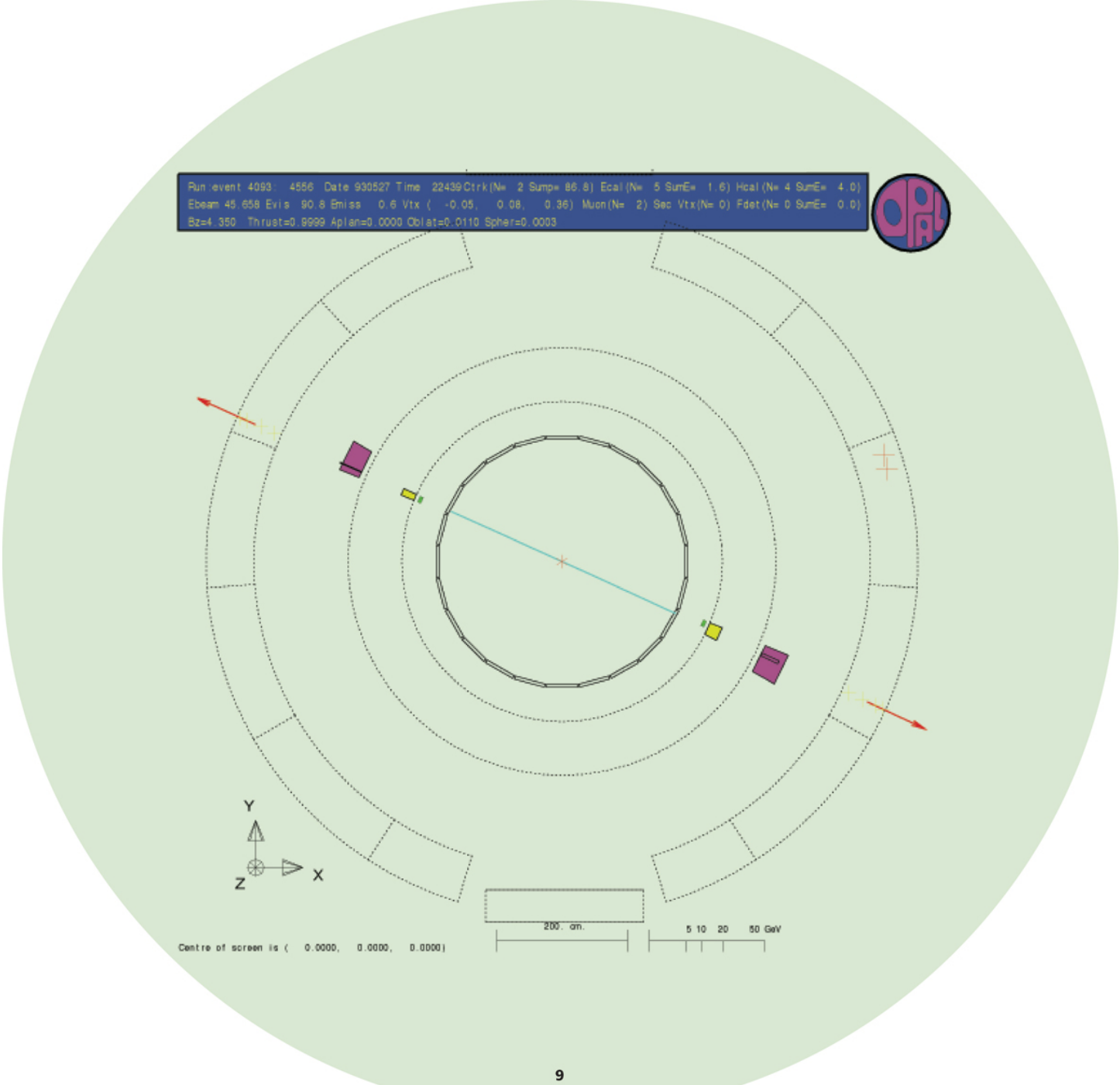
7



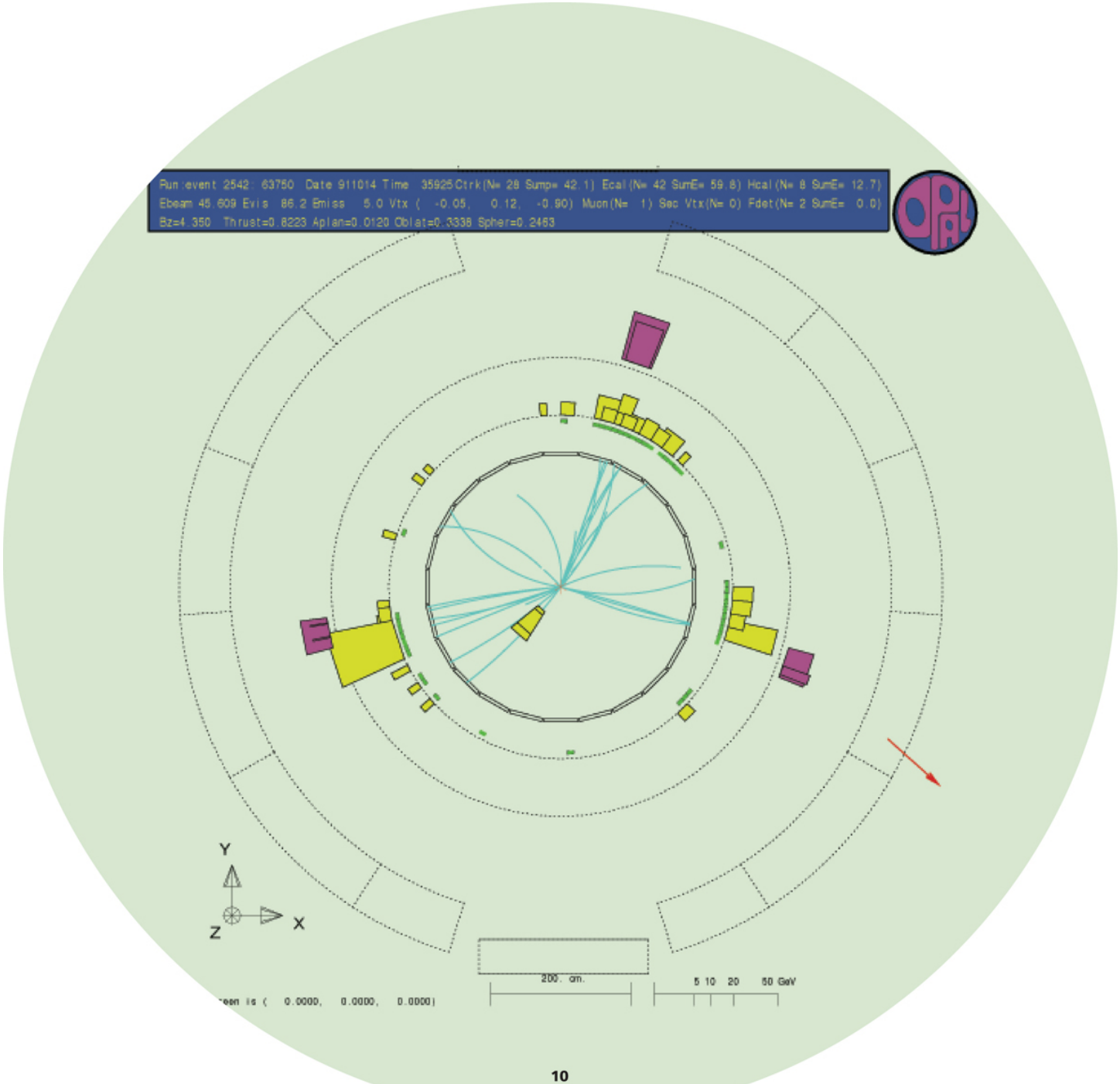
8

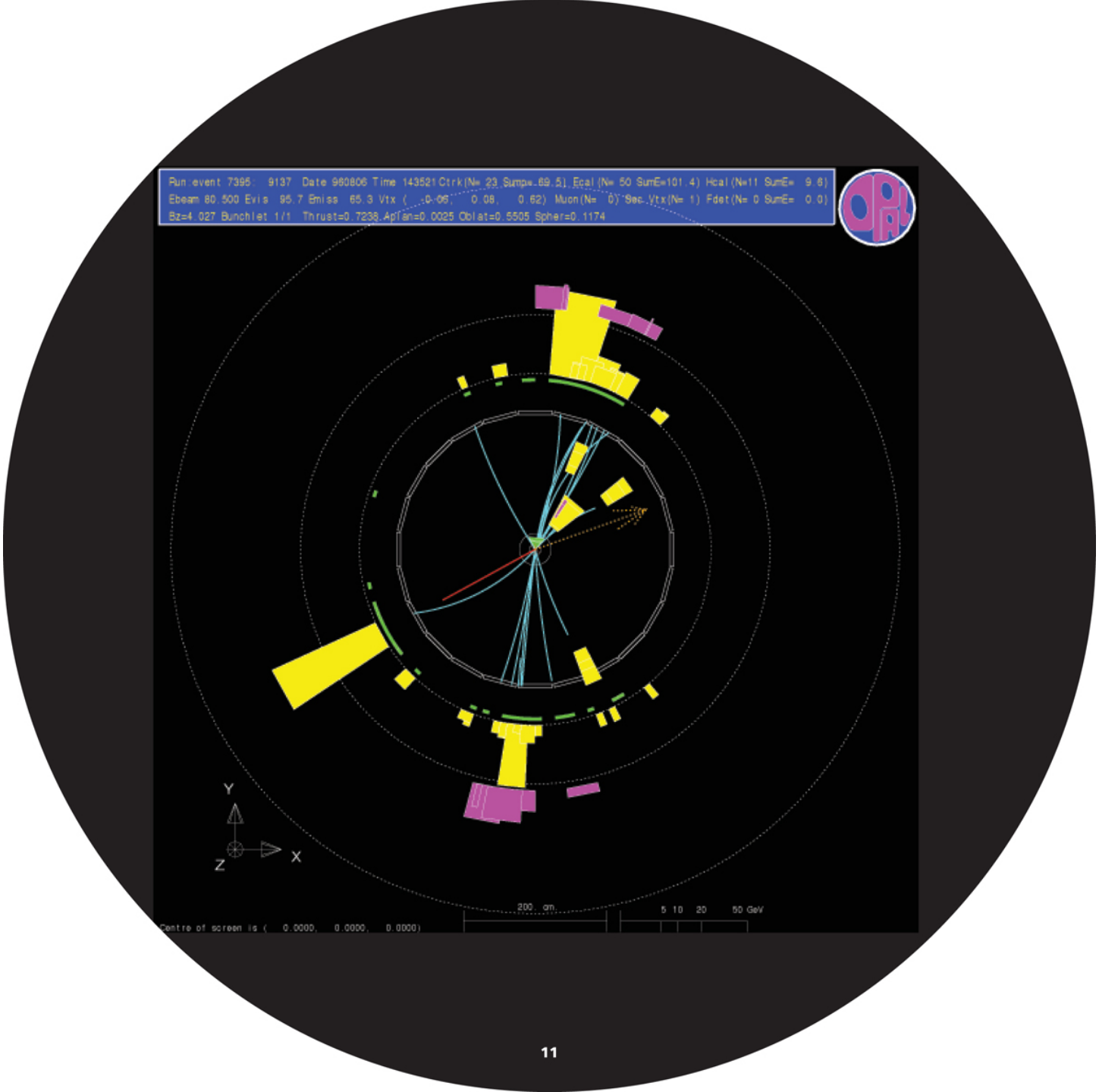


9


Run event 4093 4556 Date 930527 Time 22439 Ctrk(N= 2 Sump= 86.8) Ecal(N= 5 SumE= 1.6) Hcal(N= 4 SumE= 4.0)
Ebeam 45.658 Evis 90.8 Emiss 0.6 Vtx (-0.05, 0.08, 0.36) Mucn(N= 2) Sec Vtx(N= 0) Fdet(N= 0 SumE= 0.0)
Bz=4.350 Thrust=0.9999 Aplan=0.0000 Oblat=0.0110 Spher=0.0003
Y
X
Z
200. cm.
5 10 20 50 GeV
Centre of screen is (0.0000, 0.0000, 0.0000)
9

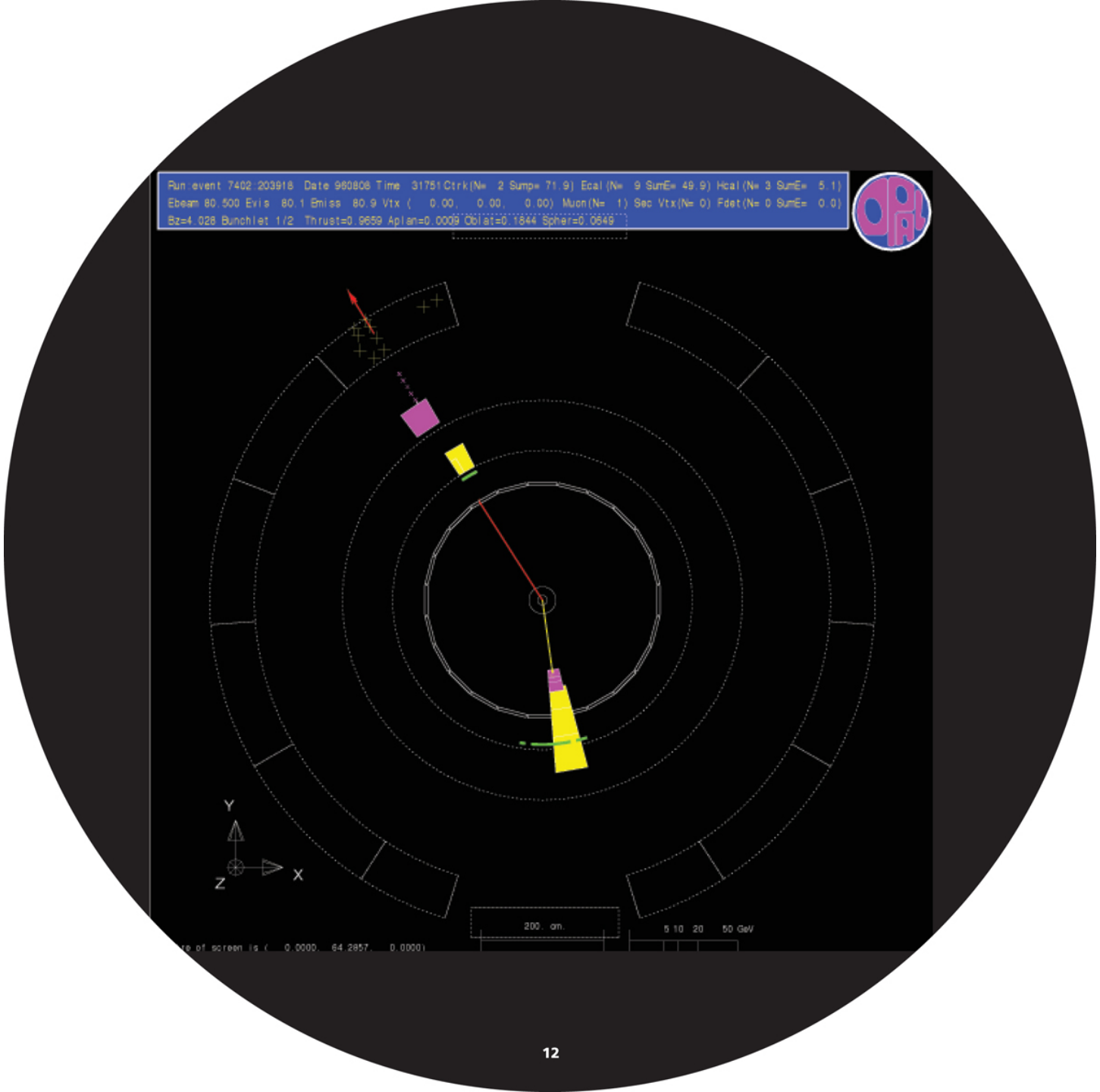
10


Run:event 2542: 63750 Date 911014 Time 35925 Ctrk(N= 28 SumP= 42.1) Ecal(N= 42 SumE= 59.8) Hcal(N= 8 SumE= 12.7)
Ebeam 45.609 Evis 86.2 Emiss 5.0 Vtx (-0.05, 0.12, -0.90) Muon(N= 1) Sec Vtx(N= 0) Fdet(N= 2 SumE= 0.0)
Bz=4.350 Thrust=0.8223 Aplan=0.0120 Oblat=0.3336 Spher=0.2463
Y
X
Z
200. cm.
5 10 20 50 GeV
0.0000, 0.0000, 0.0000)
10

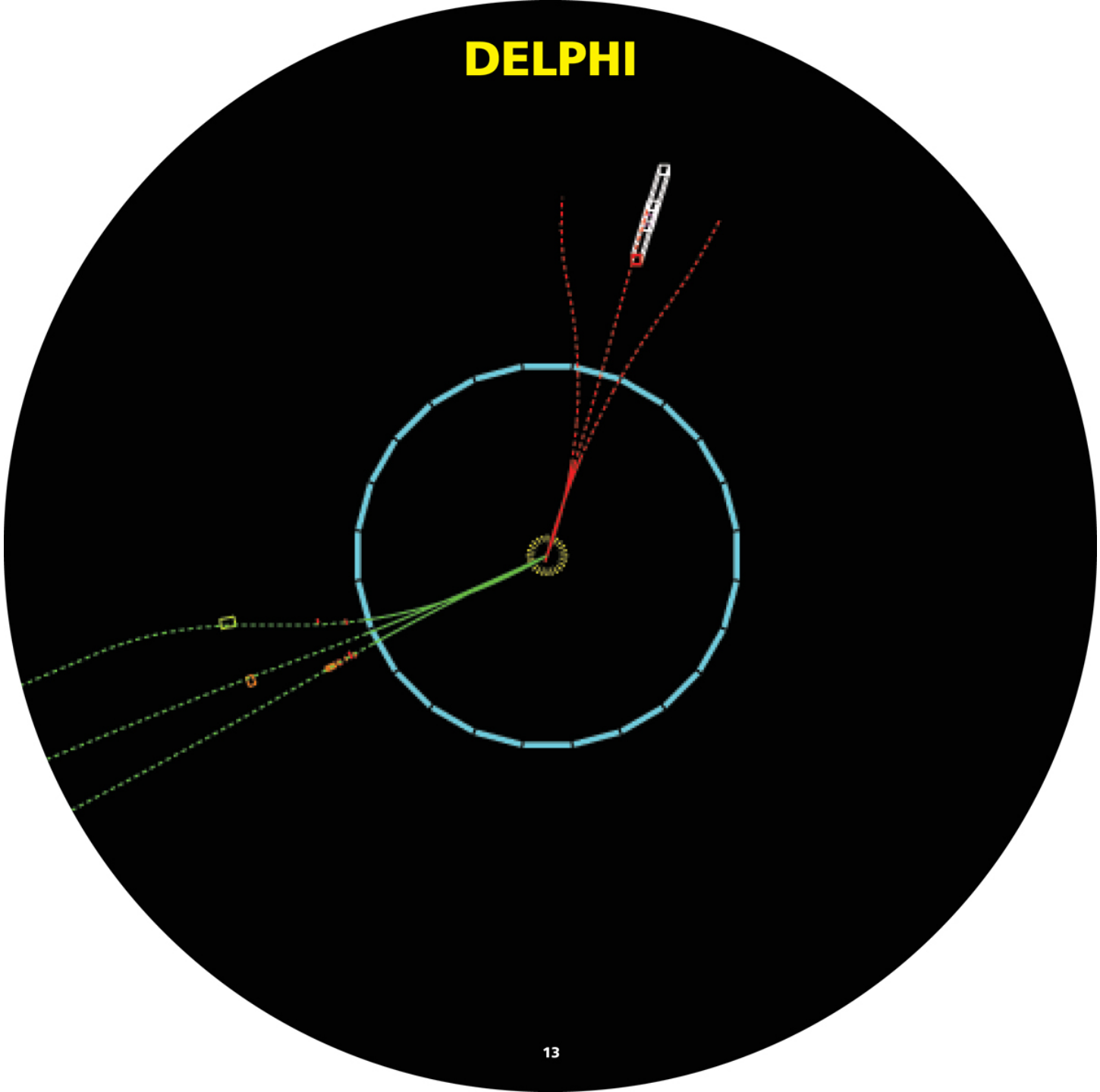

Run:event 7395: 9137 Date 960806 Time 143521 Ctrk(N= 23 Sump=-69.5) Ecal(N= 50 SumE=101.4) Hcal(N=11 SumE= 9.6)
Ebeam 80.500 Evis 95.7 Emiss 65.3 Vtx (-0.06, 0.08, 0.62) Muon(N= 0) Sec.Vtx(N= 1) Fdet(N= 0 SumE= 0.0)
Bz=4.027 Bunchlet 1/1 Thrust=0.7238 Aplan=0.0025 Oblat=0.5505 Spher=0.1174
Y
Z
X
200. cm.
5 10 20 50 GeV
Centre of screen is (0.0000, 0.0000, 0.0000)

11

12

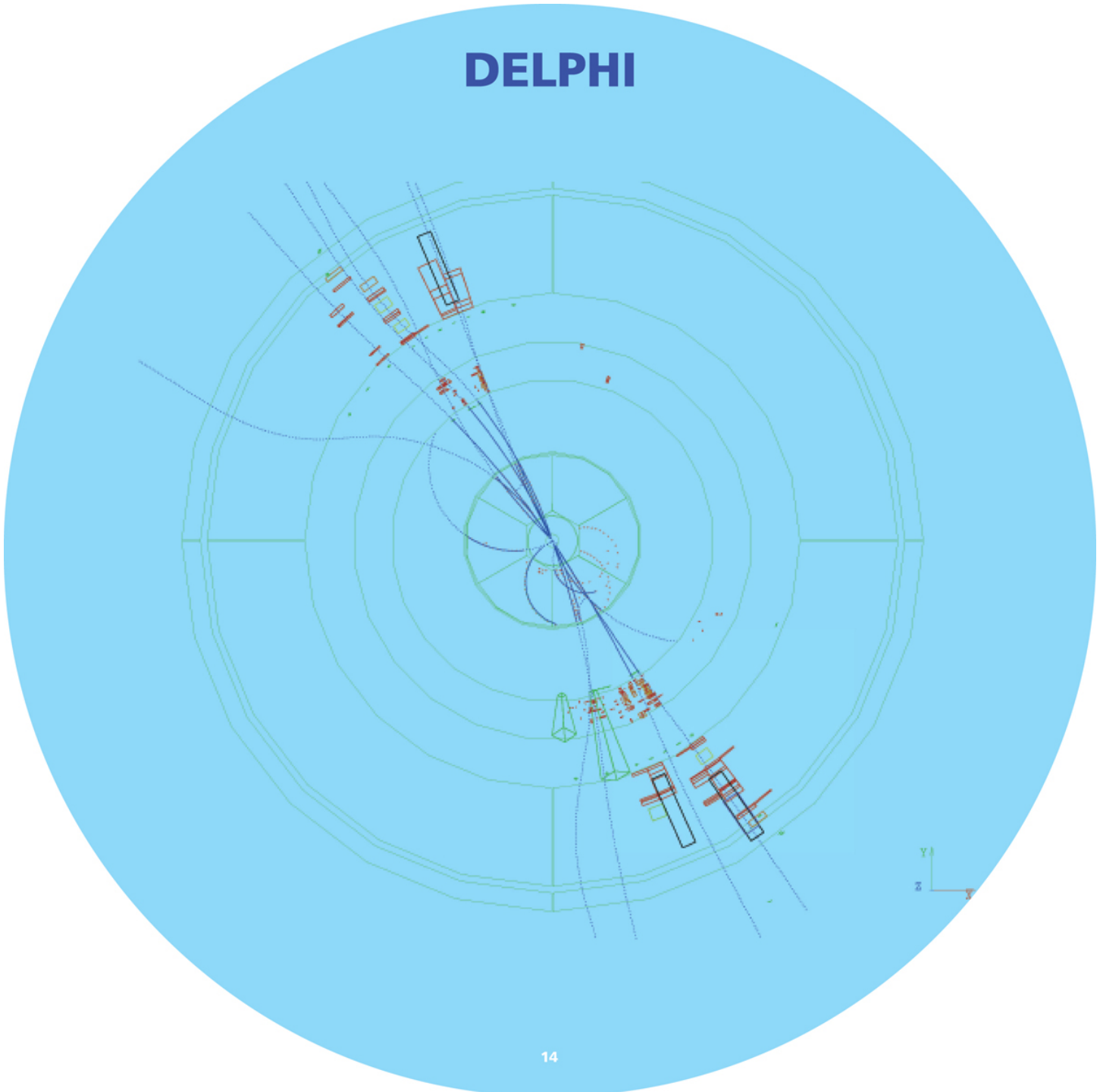

Run event 7402 203918 Date 960808 Time 31751 Ctrk(N= 2 Sump= 71.9) Ecal(N= 9 SumE= 49.9) Hcal(N= 3 SumE= 5.1)
Ebeam 80.500 Evis 80.1 Emiss 80.9 Vtx (0.00, 0.00, 0.00) Muon(N= 1) Sec Vtx(N= 0) Fdet(N= 0 SumE= 0.0)
Bz=4.028 Bunchlet 1/2 Thrust=0.9659 Aplan=0.0009 Oblat=0.1844 Spher=0.0549
Y
Z
X
200. cm.
5 10 20 50 GeV
12

13



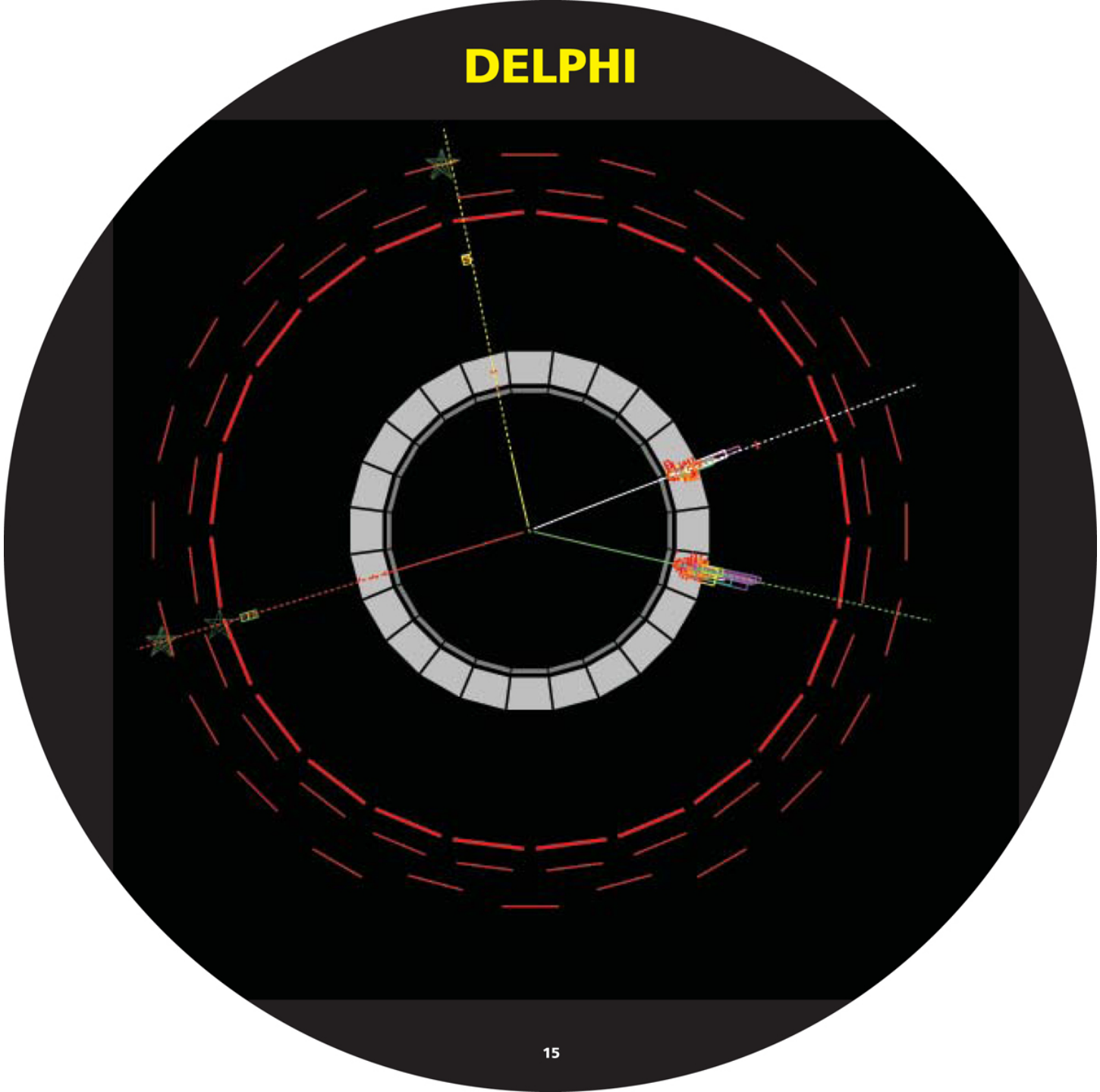
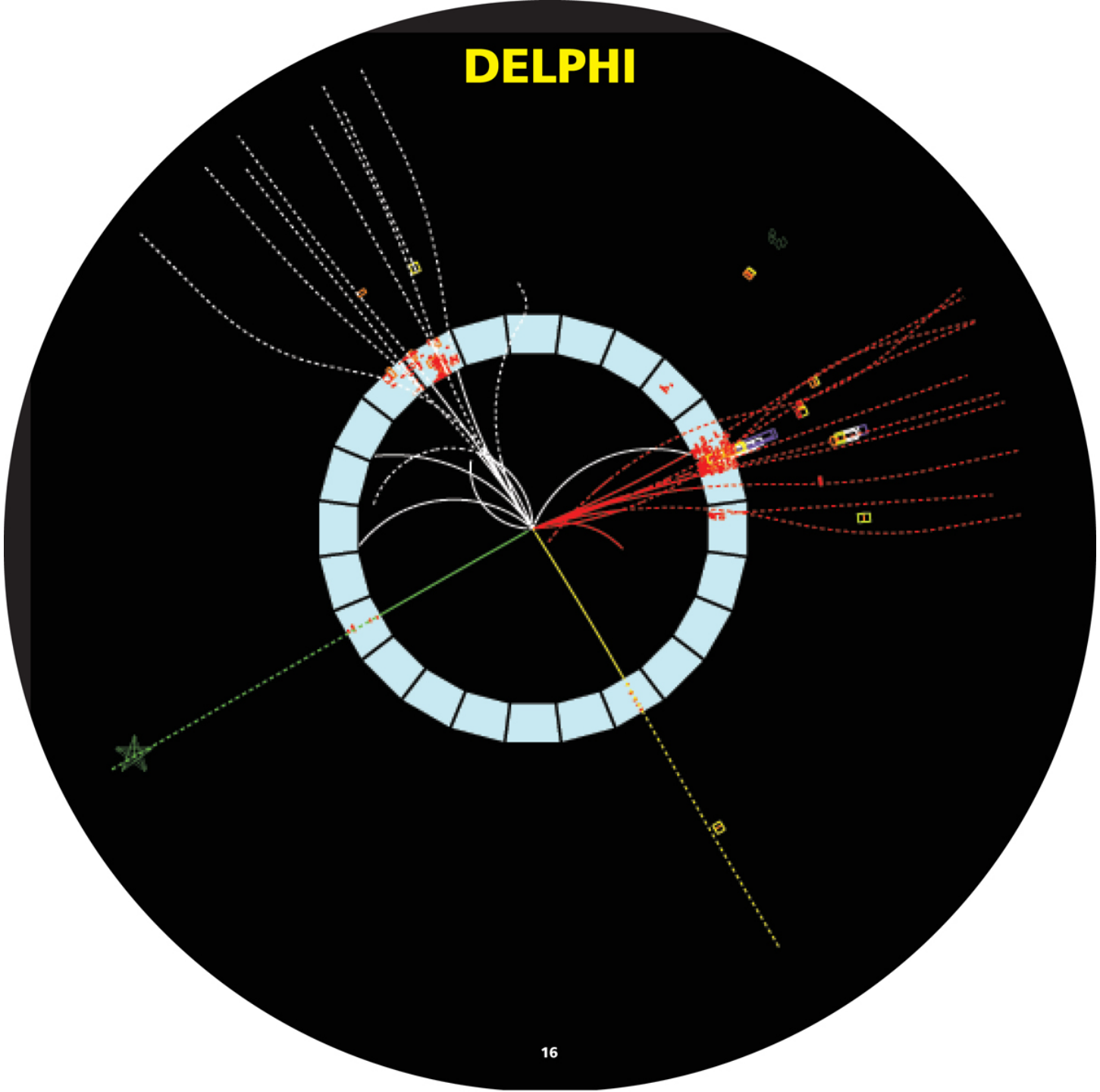
14

DELPHI



15

DELPHI



16