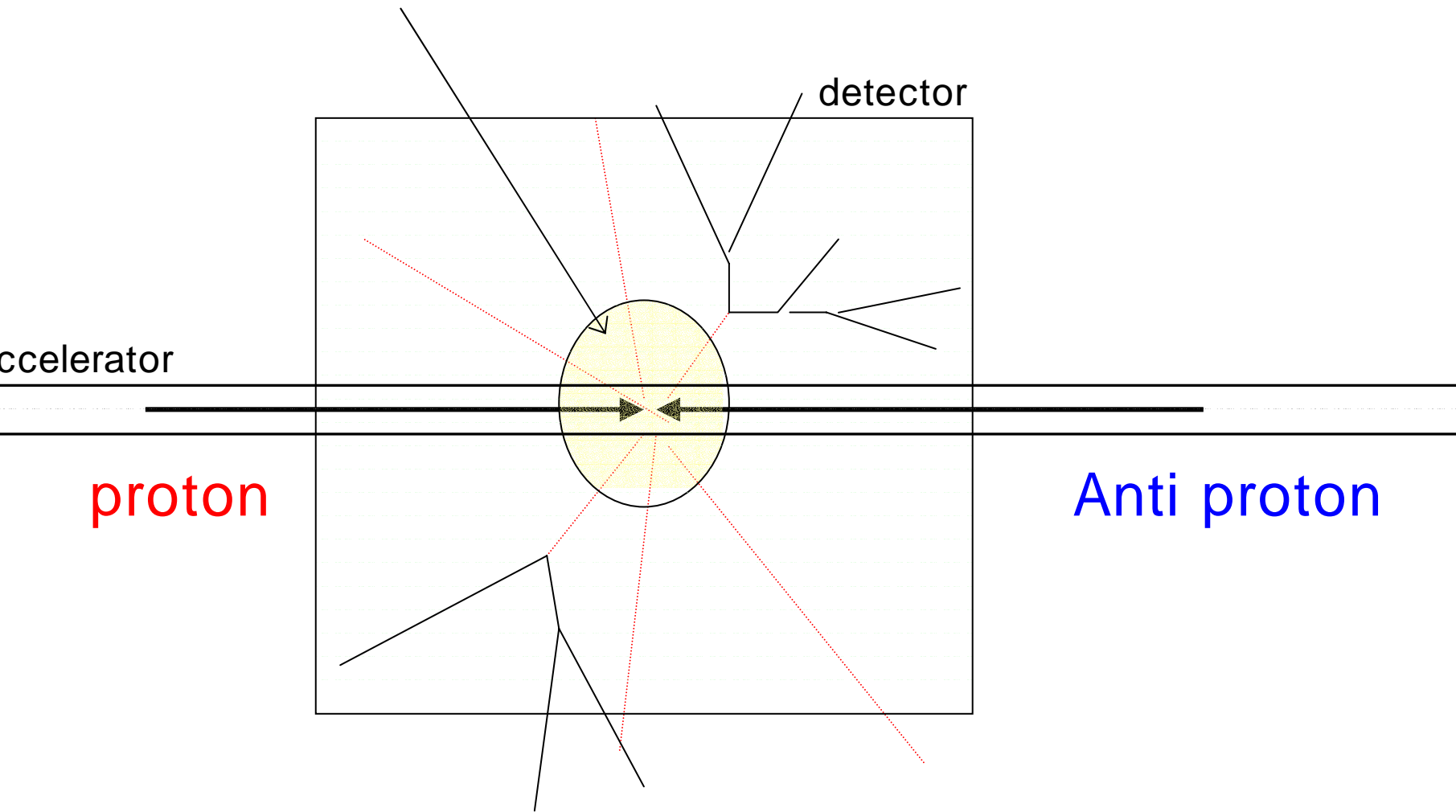
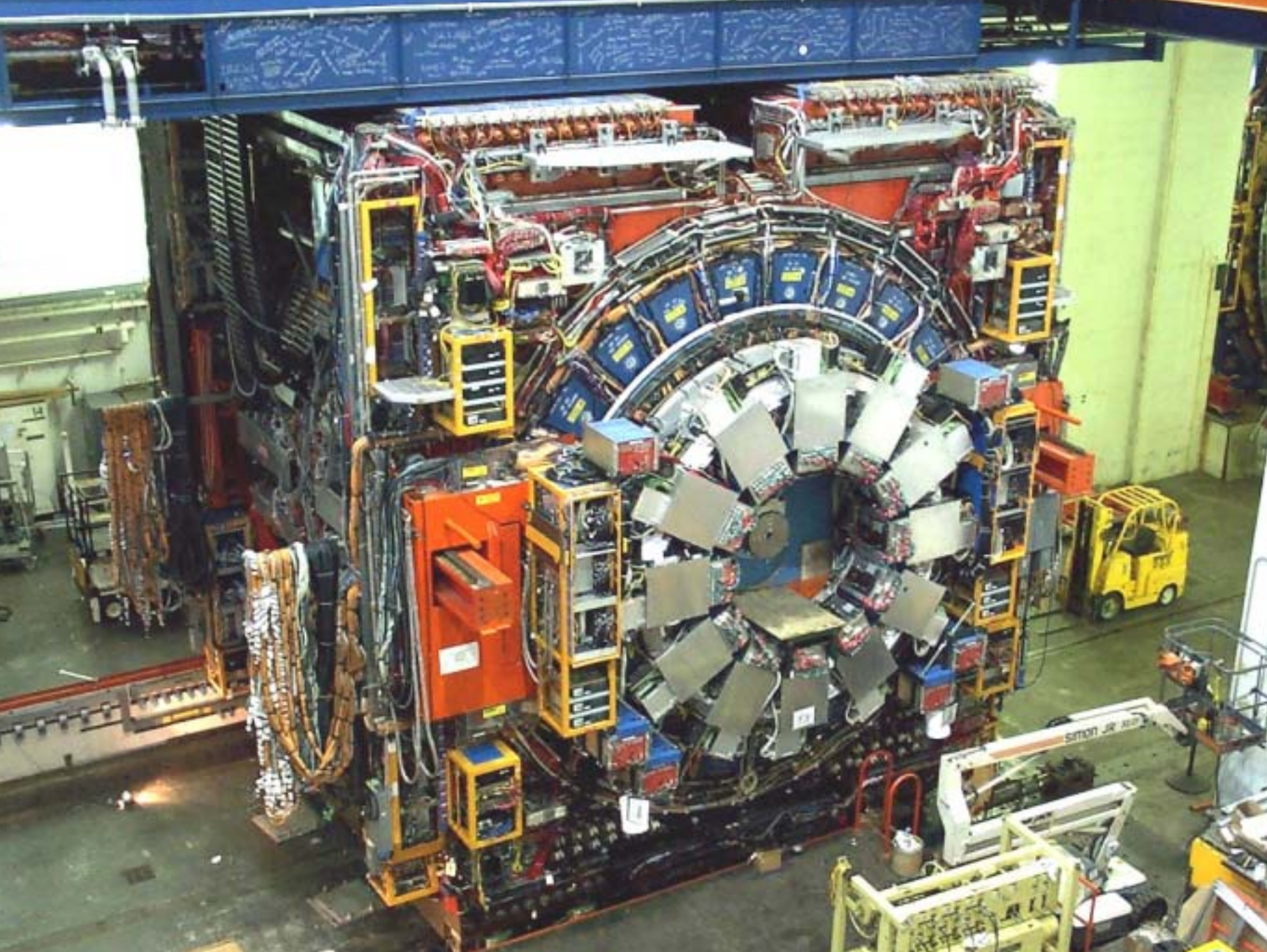
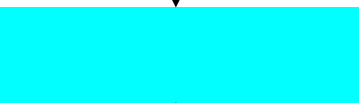
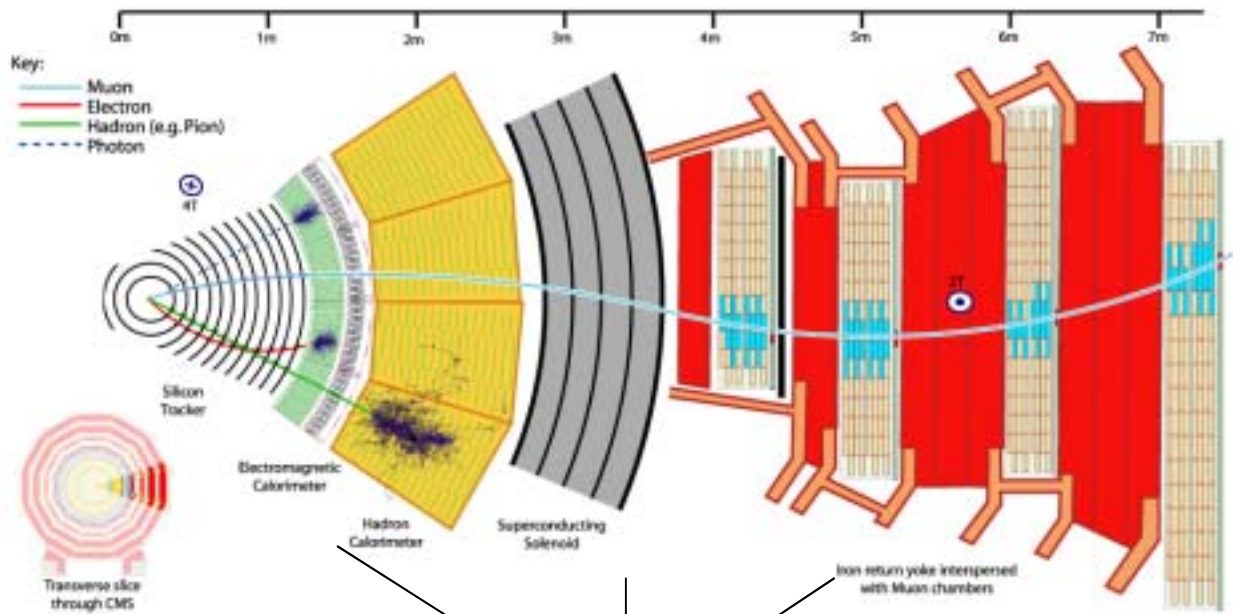
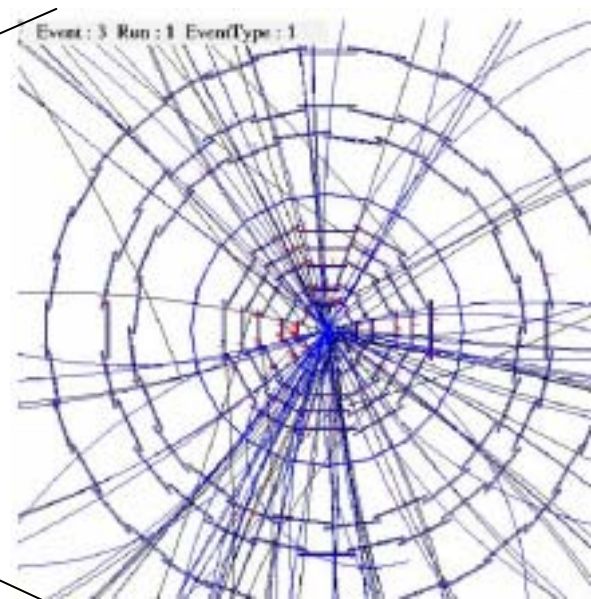
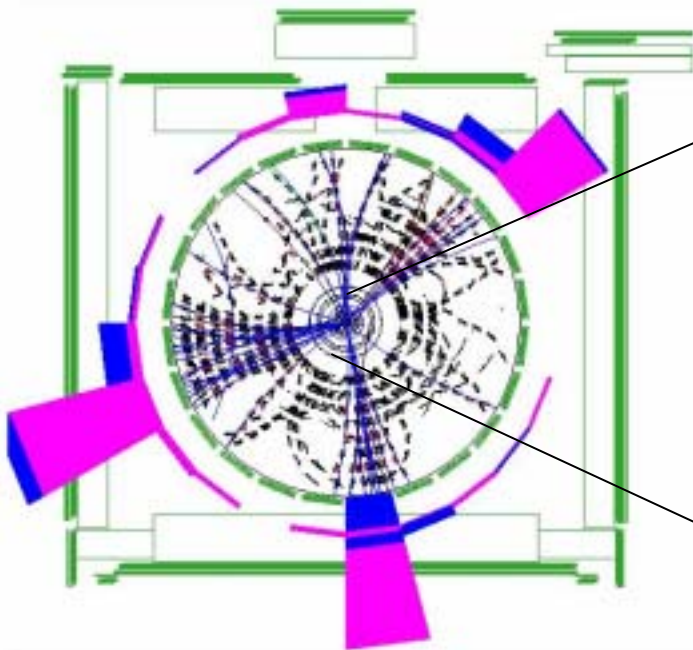
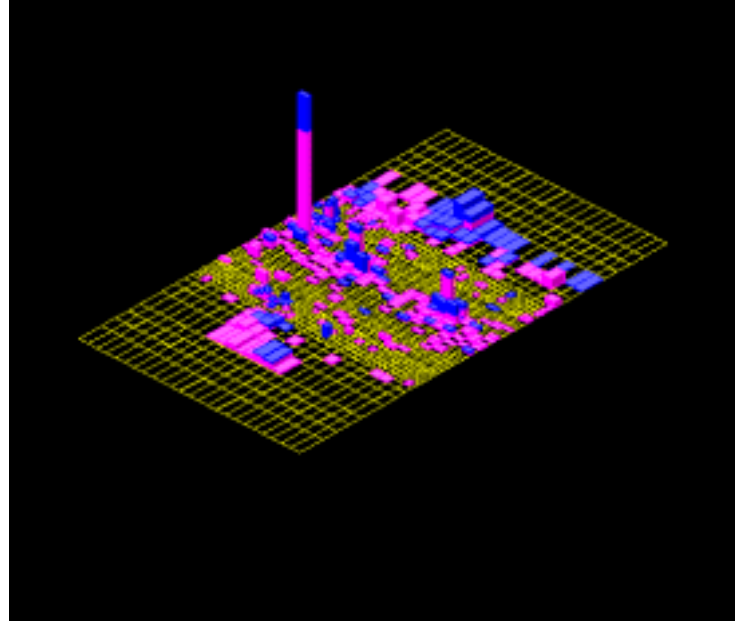
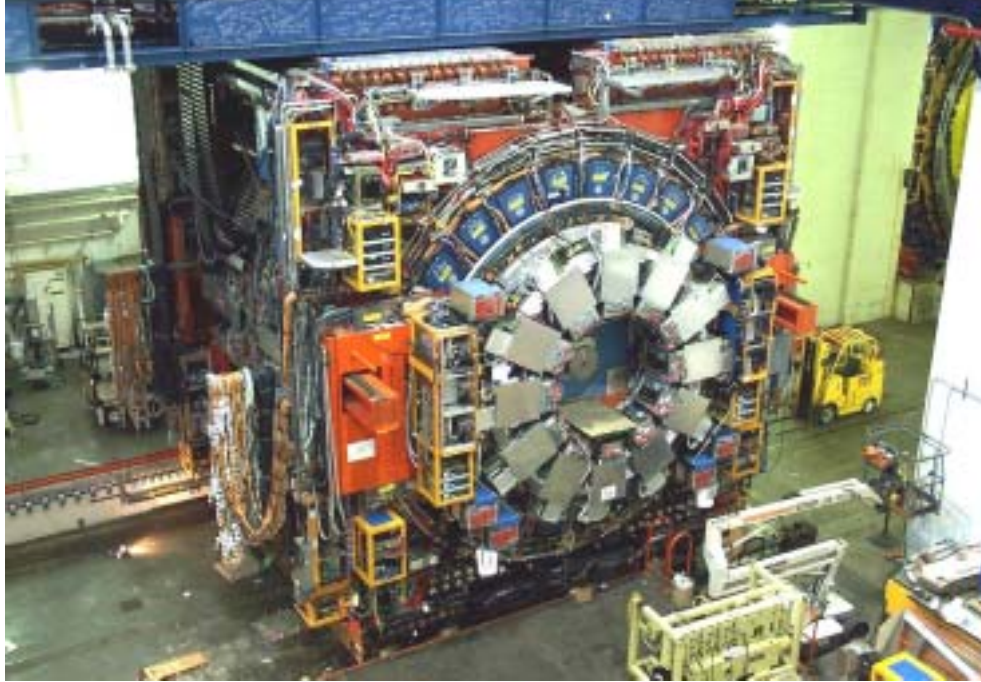


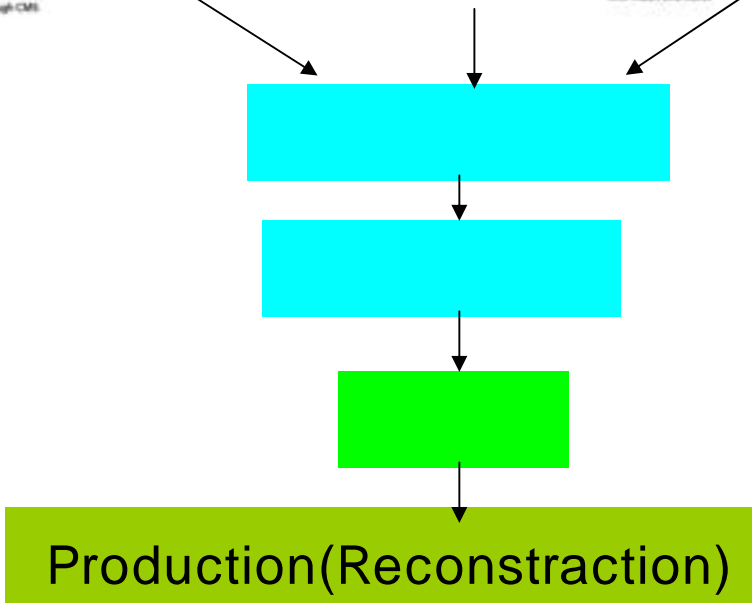
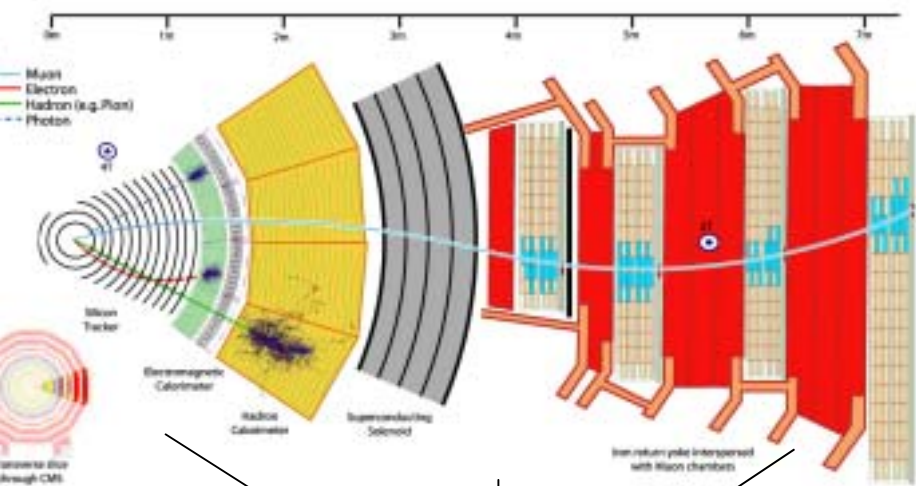
# Physics : Standard model , new physics











Generation 4-momentum

Simulation

Production(Reconstruction)

,

cdfSim : Generation + Simulation

generator : herwig, pythia, isajet, Vecbos ...

detector simulation : Geant 3

Evd : Event Display

ProductionExe : reconstruction

Running environment:

System : Linux, IRIX

language : c++

compiler : g++, KAI C++

Required package : cernlib, root, tcl/tk, java, perl, geant



# Getting Started .....

Linux

```
ID passwd
```

```
      : path,
source ~cdfsoft/cdf2.cshrc
```

```
setup cdfsoft2 4.9.1
```

```
addpkg SimulationMods
```

```
gmake SimulationMods.bin
```

```
:
```

```
,
```

```
#####
#####
When talking to GenPrimVert module, you can set the beamline. One option
s to get the beam position from the database based on the run number set
n GenInputManager. This is recommended for misalignment in simulation.
#####
odule enable GenPrimVert
alk GenPrimVert
BeamlineFromDB set true
xit
#####
The example below is to set the beamline to an average of real data.
odule enable GenPrimVert
k GenPrimVert
eamlineFromDB set false
Set beam spread in x-y [cm] (defaults are 0.0):
igma_x set 0.0025
igma_y set 0.0025
Set sigma(Z) of the interaction region [cm] (default is 30):
igma_z set 28.0
Set beam position and slope (defaults are 0.0):
v_central_x set -0.064
v_central_y set 0.310
v_central_z set 2.5
v_slope_dxdz set -0.00021
v_slope_dydz set 0.00031

#####
#####
k GeometryManager
Use the defaults but substitute the detailed for the simple Si detector
The following set up is to be added to the default GeometryManager set up.
etectorMenu
show
xit

TOF geometry model
ofGeometryMenu
# options: Nominal, Naive
GeometryModel set Survey
xit
```

```
#####
#####
talk SimInitManager
DetectorMenu
declareSvx set t
declareCot set t
declareMuon set t
declareCalor set t
declareTof set t
declarePassive set t
declareBeampipeC set t
declareCPR set f
exit
exit

#####
#####
talk SimulationControlMod
DebugMenu
showActiveVolumes set t
exit
DetectorMenu
simulateSvx set t
simulateCot set t
simulateMuon set t
simulateTof set t
simulateCalor set t
simulatePassive set t
exit
dumpFactory
add CdfHalfLadder SvxDigitizer SvxGroup
add CotSuperLayer CotDigitizer CotGroup
add CMUExtrusion MuonDigiCMU MuonCMUdata
add CMPPart MuonDigiCMP MuonCMPdata
add CMXChamber MuonDigiCMX MuonCMXdata
add CSXCounter MuonDigiCSX MuonCSXdata
add Tof3Pack TofDigi3Pack TofGroup
add TofBar TofDigiBar TofGroup
add CalorDetectorElement CalorDigiGeneric CalorGroup
add BFCoil CalorDigiBFCoil CalorGroup
add NoBFCoil CalorDigiNoBFCoil CalorGroup
add BMUGas lmuDigiBMUGas lmuGroup
add BSUPaddle lmuDigiBSUPaddle lmuGroup
```

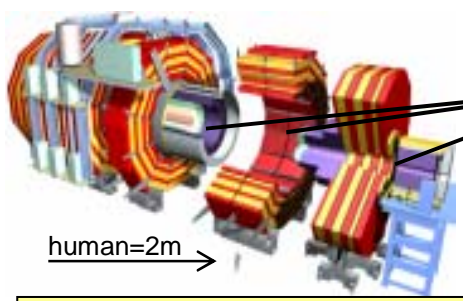
.....





# LHC Computing Grid Hierarchy

# CMS



human=2m →

**CMS detector: 15m X 15m X 22m**  
12,500 tons, \$700M.

**Online System**

~100 MBytes/sec

*Tier 0 +1*



**event reconstruction**

event simulation

*Tier 1*

~2.5 Gbits/sec

French Regional Center

German Regional Center

Italian Center

FermiLab, US Regional Center

CHEP, Korea Regional Center

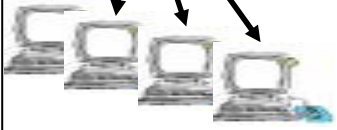
analysis

*Tier 3*

Physics data cache

Institute ~0.25TIPS

100 - 1000 Mbits/sec



Workstations

*Tier 4*

Tier2 Center

~0.6-2.5 Gbps

*Tier 2*

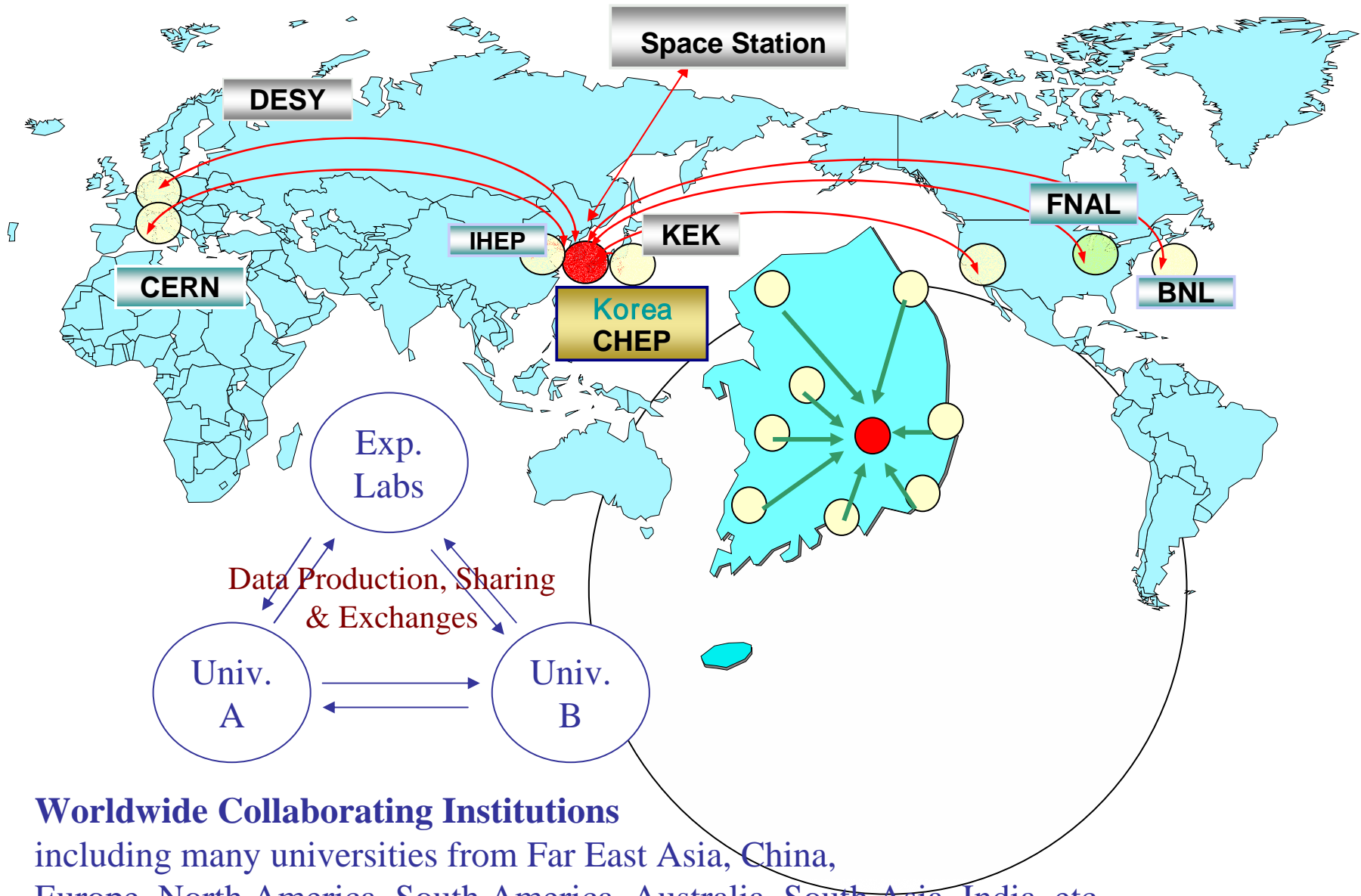
~0.6-2.5 Gbps

*CERN/CMS data goes to 6-8 Tier 1 regional centers, and from each of these to 6-10 Tier 2 centers.*

*Physicists work on analysis "channels" at 135 institutes. Each institute has ~10 physicists working on one or more channels.*

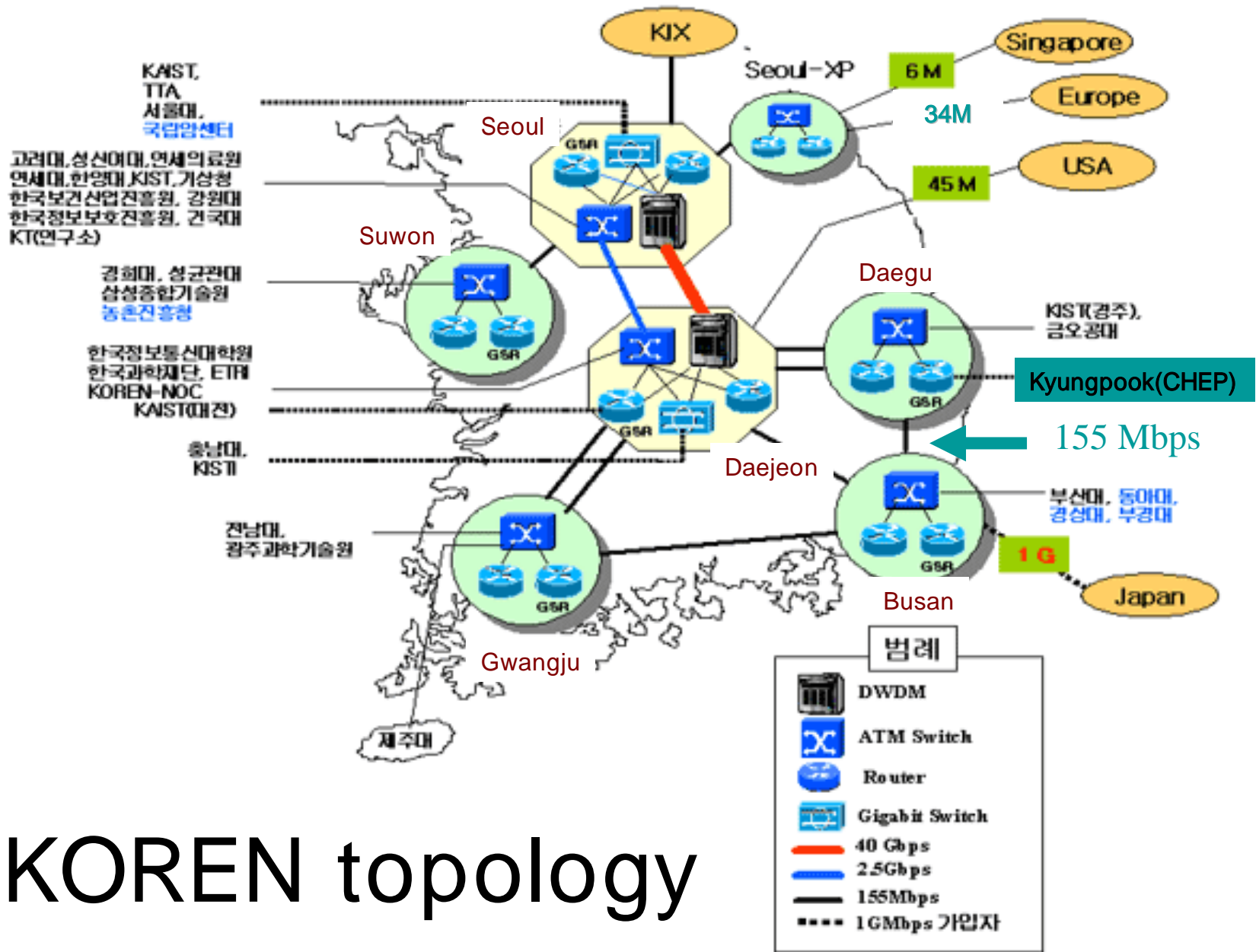
*2000 physicists in 31 countries are involved in this 20-year experiment in which CERN/DOE are major players.*

Courtesy Harvey Newman, CalTech and CERN



## Worldwide Collaborating Institutions

including many universities from Far East Asia, China, Europe, North America, South America, Australia, South Asia, India, etc.



# KOREN topology