# Status of work at D0-France

## Outline

☆ **IN2P3**

- Overview (PP)
- Calorimeter calibration (UB)
- MCC99_2 at CCIN2P3 (EL)

☆ **CEA Saclay (AZ)**

# France (Saclay - IN2P3)

## Hardware - Online

**Saclay**

**IN2P3**

↓

↓

FIC
Trigger model
Level3

Calo Calibration
+ soft

# France (Saclay - IN2P3)

## Offline

Calorimeter

Muons detector

Tracker

Offline calib
e-id
Jets/Et miss

B field param.
Reconstruction

Full MC
PMCS

## Physics (top ,SUSY)

# Status of work at IN2P3-France

## Outline

- People and Labs
- Activities "at home"  (not a full review)
- MCC99 and Analyses at CCIN2P3 (Lyon)
- Conclusion

# People and Labs

Labs:

- CCPM Marseille
  3 physicists + graduate student
- ISN Grenoble
  4 physicists + 2 graduate students
  1 computing engineer
- LAL Orsay
  4 physicists + 2 graduate students
  2 computing engineers
  3 electronic engineers
- LPNHE Paris
  4 physicists + 1 graduate student
  1 computing engineer
  4 electronic engineers
- CCIN2P3 Lyon (computing center)

# Hardware/Online

☆ **Calibration of the Lar calorimeter**
LAL Orsay/LPNHE Paris (see Ursula's talk)

- Electronics ➜ end 99
- Soft online

☆ **Calo FE electronics** (new schedule)

- help in final design and making (too late ?)
- debugging

# OFFLINE 1

- EM Calorimeter calibration

  Z → e+ e-  CPPM + ..

  Υ → e+ e-

  Ψ → e+ e-

- Jets and Et miss (LAL/LPNHE)

  Improve the jet energy scale

  ➘ Et miss resolution

- hot cells (LPNHE/ LBL)

new algorithm

- Jets reconstruction (LAL)

RUN I Cone and kT (Catani, Ellis and Soper) in **C++**

New algo. “a la ALEPH” = GAMPEX

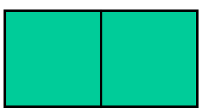
# OFFLINE 2

"GAMPEX" is a highly granular clustering

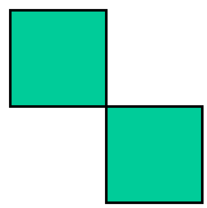
This is desirable for:

finding EM objects in or close to jets

reconstructing jets and applying track-cell combinaison



neighbours



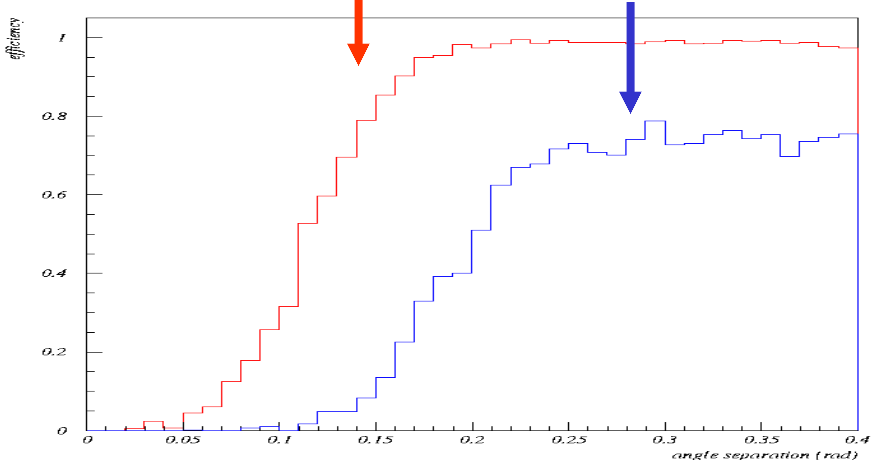
not neighbours

- cell clustering floor by floor
- two cells touching by one corner
  can start two clusters

# Two e- separation eff. vs angle in rad.

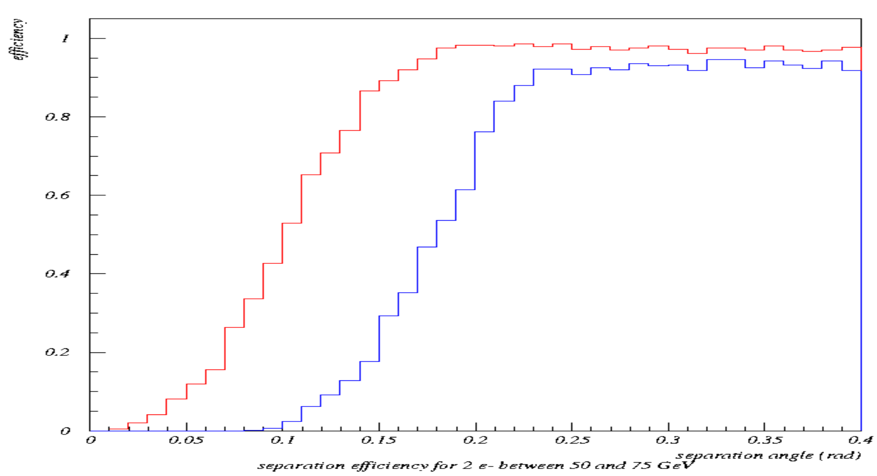
new clustering

EMnn

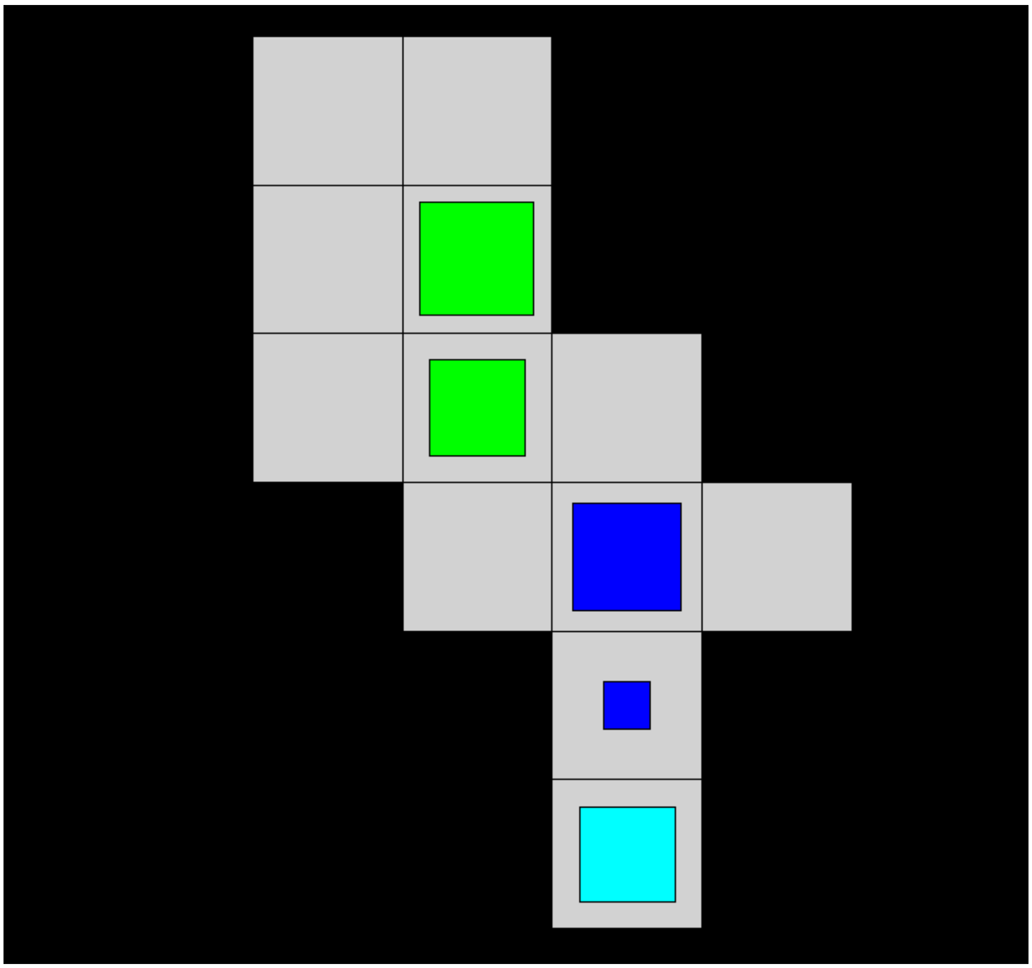



3 Gev < e- energies < 10 Gev

50 Gev < e- energies < 75 Gev



# Visualization of two clusters



Graphics on Linux using local solutions
D0 standard (MrDatae:Youssef)
with SoFree (free) version of OpenInventor
... under study at LAL

# e-ID

**Hmatrix (LAL) and Likelihood (ISN)**
**Milstones fulfilled**

**but :**

**IN2P3 groups want to focus on low Pt e+-**

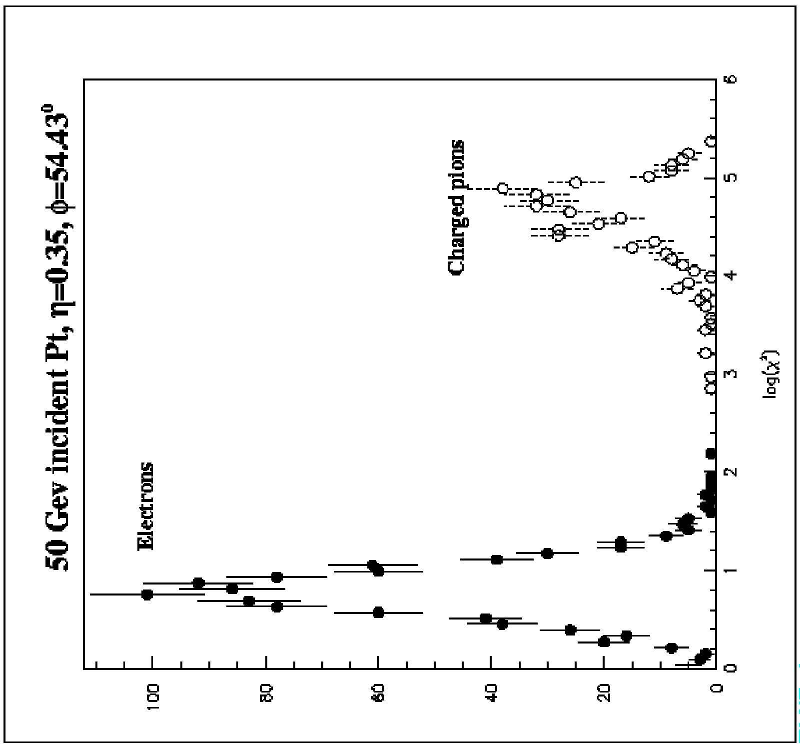
- Hmatrix  (5-15 Gev)
- Likelihood (background)
- Tracking : bremfit " a la ATLAS "
- New algo clustering (GAMPEX)
- Noise
- → electronic noise + uranium
- → pileup

  add minibias evts at the digi level
  (at XxxDataChunk)

# Hmatrix 7x7

Hmatrix status

PS, E1, E2, E3, E4, FH1
iso = (E(0.4)-E(0.2))/E(0.2)




4

EMID June 10,1999

M. Jaffré

# e Liklelihood

First pass at an e Likelihood uses 3 parameters
- E/p
- Eem/Etotal
- H-matrix $\chi 2$

Make probability tables as functions of :
- parameters (E/p, ..)
- hypothesis (e,$\gamma$ conversion, $\pi$+- $\pi$o
- energy
- $\eta$

Next version will add
- track-cluster matching
- track-preshower matching

# Monte Carlo 1

## MCC99_2 at CCIN2P3

(IN2P3 is heavily participating)

## Production (see Evelyne's talk)

- pmc02-01 is installed
- tests beeing performed : Linux (FNAL vs Lyon)
  Linux vs SGI
- ready for prod October on Pc's farms

  (computing power ↗ 15KMips end 99)

BUT:

- ♠ data exchange FNAL/LYON (Lee's talk)
- ♠ A standard set of rcp files required !!

# Monte Carlo 2

## MCC99_2 at CCIN2P3

### Analyze (on Linux )

- ☆ Golden releases installed :
  - ➨ D0reco and analyses
  - ➨ code (i.e. All e-ID and jets devt done in France)
- ☆ Data import from MCC99_2 and then some real data from RUN II
  - ➨ can work almost as in FNAL
  - ➨ CCIN2P3 open to the European collaboration

# Network

☆ **France/USA**

**Two lines**

➡ **CERN-Chicago 12 Mbp/s ↗ 20 Mbp/s**

➡ **RENATER (French Research Network)**
**>10Mbp/s in 2000**

☆ **European Bandwidth**

➡ **CCIN2P3 → French labs : 12Mbp/s ↗ 155 Mb/ps**

➡ **CCIN2P3 → European labs : ↗ 155 Mb/ps**

# CONCLUSION

The review is partial but I wanted to stress the activities focused in France on the CCIN2P3 Lyon

as important activities not mentionned :

- PMCS (CPPM + ..)
- RUN I analysis

W mass in the encaps (LPNHE)
stop search in for bodies decay (LPNHE)
SUSY search with R parity violation (CPPM)

**D0 need strong groups abroad !**
**This is new compared to RUN I**

**Important contributions in :**

- Hardware (calo calib)
- Monte Carlo production
- Software
- European collaboration in the data analysis