Feb. 2, 2006

REQUEST FOR CDF-VISITOR under CIEMAT; Luis Labarga

- Born in Spain, in 1960
- Doctorate in experimental HEP 1987
- “Profesor Titular” in University Autonoma Madrid since 1991

Inspecting the MARKII SSVD, SLAC (1989)

The first ATLAS EM CAL module built in UAM-Madrid (2003)

Research Lines *(chronological order)*

DESY (1985-1987) TASSO at PETRA

- Fragmentation; g-jets, b-jets
- Tests of p-QCD and measurements of α_s

SLAC (1987-1989) MARKII at SLC

- [PEP] Measurement of $e^+e^- \rightarrow$hadrons ($\sqrt{s}$=29 GEV) and α_s
- Measurement of Z boson resonance parameters
- "Silicon Strip Vertex Detector": construction + commisioning

UAM-DESY (1990 $\rightarrow$) ZEUS at HERA

- Optimitation of calorimeter design; extensions
- Construction and tests of the "Forward Tracking Detector"
- DIS cross section, Difracción and QCD-p
- "charm" electroproduction and QCD-p

UAM-CERN (1995 $\rightarrow$) ATLAS at LHC

- Design, Construction and Tests of the EndCap EM Calorimeter
- Computation distributed GRID for ATLAS, UAM node
- Preparation of low and intermediate mass Higgs search

UAM-FNAL (2004 $\rightarrow$) CDF at TEVATRON

Current Activities

⇒ c and b production in DIS $e^{\pm}p$ with ZEUS/HERA:
the gluon inside the P and QCD

- D hadron production (98-00 data)
- Measurement of $D^{*\pm}$ with +MVD and estimation of $F_2^{c\bar{c}}$ (04-07)
- Reconstruction of secundary vertices from b,s with MVD and extraction of $F_2^{b\bar{b}}$ (04-07)

⇒ Preparation for Higgs search at ATLAS/LHC

- $H \rightarrow ZZ^* \rightarrow 4l$ (first 20 fb$^-1$)
- VBF $H \rightarrow ZZ^* \rightarrow 2b2l$
- Investigate the use of “Neural Networks” for the above
- Development of “user-side” techniques for GRID computing

Participation in CDF

Why?

- Very good scientific+personal relationship between JPF and myself
- JPF propposed me to help in consolidation of CDF-CIEMAT Group
- I am interested in gaining experience on hadron colliders for the LHC startup
- I am interested in further learning about seconday vertices and b-physics and particularly, respecting the latter, CP violation

How?

- Work in some of the analyses the Group is carrying on
- Help in its service work when needed
- Share the supervision of the students; help in attracting students
- Fulfill the regular obligations (shifts etc.)

What?

$\Rightarrow$ CP violation in the b sector

- Meas. of life-time of exclusive modes (with $\approx$ 700 pb^{-1} run II)
  $B^+ \rightarrow J/\psi K^+, B^0 \rightarrow J/\psi K^{*0}, \rightarrow J/\psi K^0_s, \Lambda^0 \rightarrow J/\psi \Lambda^0$
- Meas. of $sen(2\beta)$ and $sen(2\beta_s)$ from (with ≈ 2 fb$^-1$ run II)
  $B^0, \bar{B}^0 \rightarrow J/\psi K^0_s, \rightarrow \Phi K^0_s \rightarrow J/\psi K^{*0}$ y $B^0_s, \bar{B}^0_s \rightarrow J/\psi \Phi$