

WELCOME at LPNHE !



Pascal DEBU



Laboratoire de Physique Nucléaire et de Hautes Energies

- CNRS/
 - 1200 labs / 17000 researchers / 15000 engineers & technicians
- /IN2P3 (“Institut National de Physique Nucléaire et de Physique des Particules”)
 - 20 labs / 500 researchers / 1400 engineers & technicians
- University Pierre et Marie-Curie (Paris 6)
 - Physics, mathematics, biology, medicine, earth sciences
 - 31000 students / 3250 univ. scientists / 2140 support staff
- University Denis Diderot (Paris 7)
 - Sciences, humanities, medicine
 - 26000 students / 1400 univ. scientists / 1100 support staff



Laboratoire de Physique Nucléaire et de Hautes Energies

- **12 physics groups ; 5 support divisions**
- **Researchers : 50 staff + 32 non permanent**
CNRS : 24
University : 26
Visitors, non staff : ~16
PhD students : 16
- **Engineers & technicians & administration 49**
Computing : 11
Electronics : 16
Mechanics : 10
Administration : 9
Logistics : 3



Particle Physics



Energy frontier

- Fundamental constituents of matter and interactions
- Unification of interactions
- Electroweak symmetry breaking, mass generation ,
- Higgs particles search
- Supersymmetry ?
- Quark mixing matrix

(ATLAS, D0, CDF, ILC)

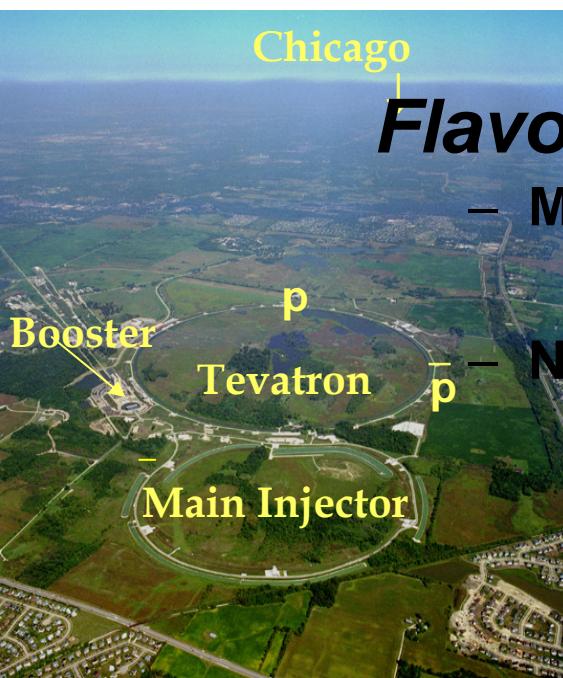
Chicago

Flavor Physics

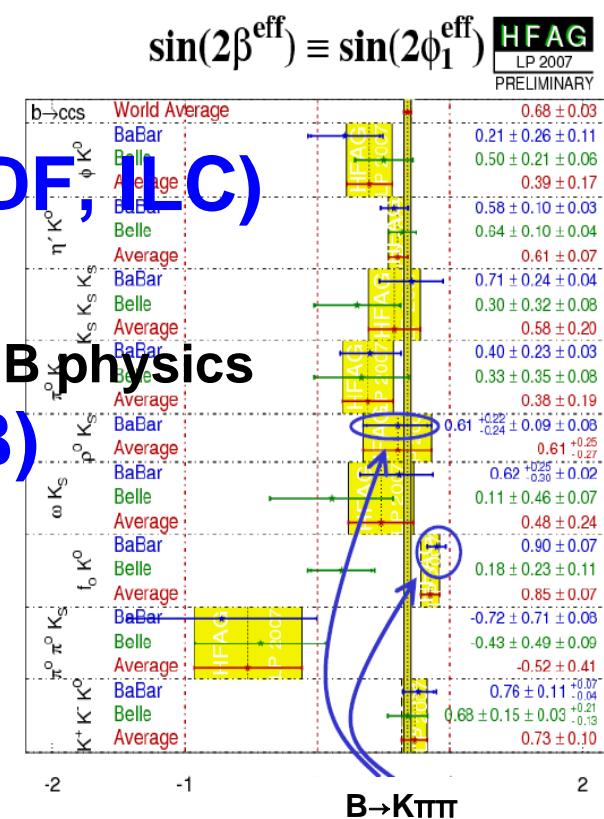
- Matter-antimatter asymmetry, B physics

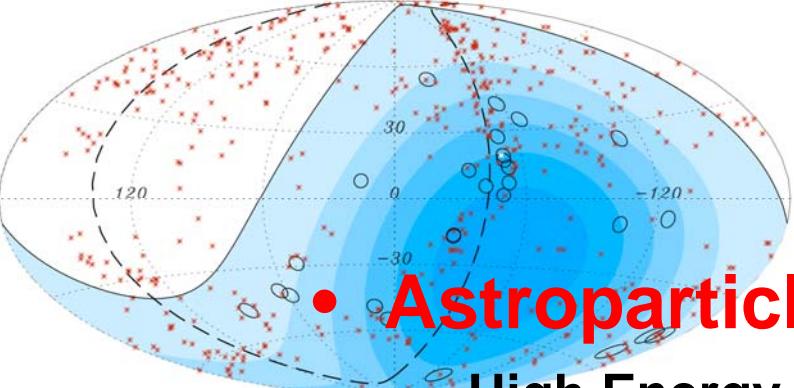
(BABAR, LHCb)

- Neutrinos properties
(T2K)

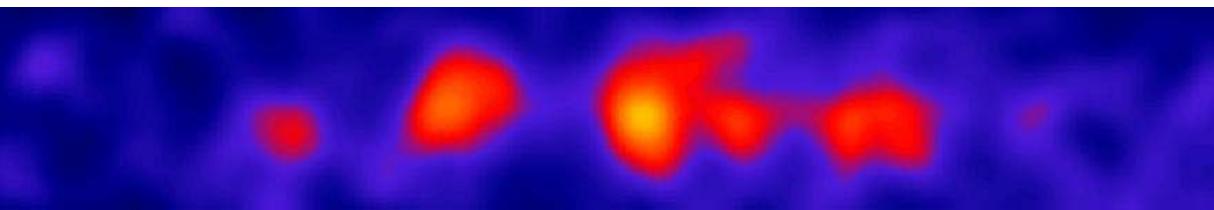


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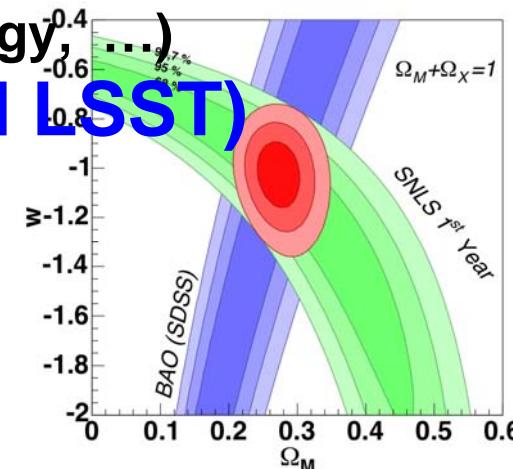
- **Astroparticle physics :**
 - High Energy Cosmic rays : gammas, hadrons, neutrinos
 - Dark Matter Search: annihilation of neutralinos
- (HESS & HESS2, AUGER, R&D CTA)**



- **Cosmology :**
 - Cosmological parameters (dark energy, ...)
- (SNLS, SNF, R&D SNAP and LSST)**



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Technical Divisions

Mechanics

- **ATLAS**
 - Tooling
 - Integration
 - Studies upgrade TRT
- **HESS2** : support, installation, cooling of the camera
- **R&D future LC** : Support and cooling for a Si tracker, prototypes
- **COSMOLOGY** : CCD test bench calibration system now at CFHT, prototypes for LSST filters support



Modules détecteurs

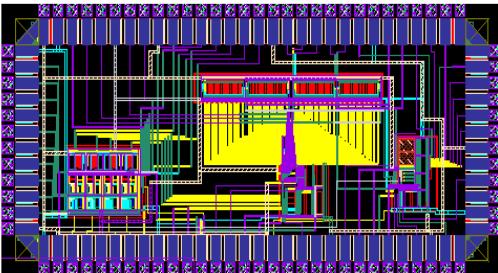
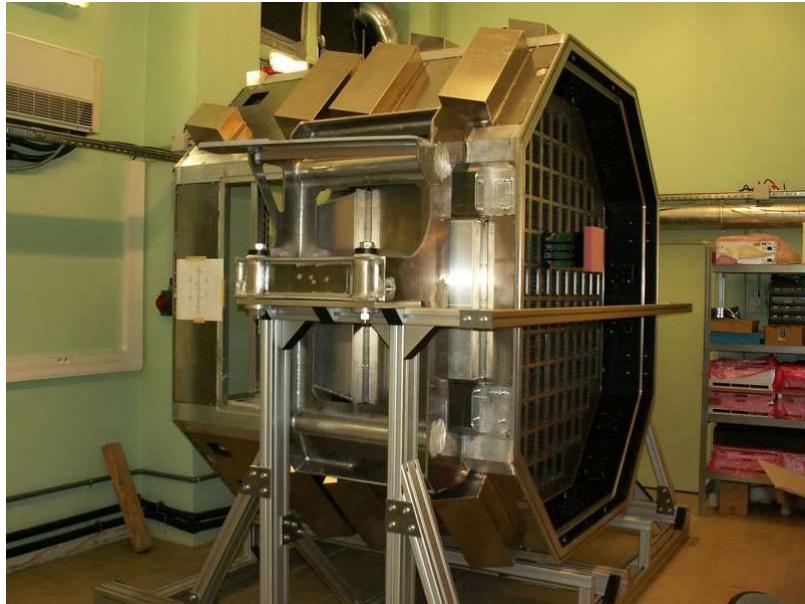


Technical Divisions

Electronics



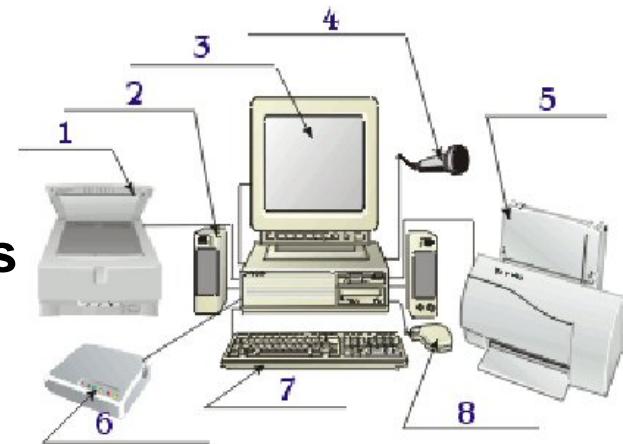
- *ATLAS large front-end cards*
 - Production follow up and tests
- *ATLAS acquisition*
 - Crate controller and serial link
- *HESS*
 - Electronics of the 4 cameras
 - Electronics HESS2 camera
- *SUPERNOVAE*
 - r/o & acq CCD, calibration system
- *ILC*
 - Si r/o chip (180,130, 90 nm)
 - Test benches for the detectors
- *T2K*
 - Data reduction & transfer
- *Digital control for RF cavities*
(Eurisol, Eurotrans, SPIRAL2, ...)



Technical Divisions

Computing

- *Lab general computing*
 - Local network 100 Mb/s & wifi
 - serveurs linux for physics groups
 - serveurs IAO electronics et CAO mechanics
 - serveurs admin, WEB, teaching
 - support to users
- *Computing for projects*
 - Acquisition + test benches & network (Auger Access)
 - Algorithms/Analysis/Simulation/Data bases
 - GRIF : LHC Computing Grid + Egee
 - CPU (ksi2k) : LPNHE/Total GRIF : 500/6000
 - Stockage (To) : LPNHE/Total GRIF : 120/600 To





Long term perspectives

- **LUMINOSITY UPGRADE OF LHC**
 - Upgrade ATLAS TRT
- **FUTURE International Linear Collider**
 - R&D Si Tracker (electronics & mechanics)
- **COSMOLOGY**
 - Contribution to the Large Synoptic Survey Telescope project
 - Studies for a Satellite Experiment
- **NEUTRINOS**
 - Contribution to future developments
- **GAMMA ASTRONOMY BEYOND HESS2**
 - Cerenkov Telescope Array design study
- **ULTRA HIGH ENERGY COSMIC RAYS**
 - Auger North



-Time to cover the splendid results obtained by D0 over the years

- Have a successful workshop for the preparation of the forthcoming exciting times at the Tevatron and at the LHC
- Hope for better times for HEP funding

