



UNIVERSITE MOHAMMED PREMIER
FACULTE DES SCIENCES
OUJDA
Département de Physique



Laboratoire de Physique Théorique,
des Particules et Modélisation
(LPTPM)

HEP activities in LPTPM

Pr. M. OUCHRIF

HEP Workshop in Morocco October 27-28 Tangier



**Laboratoire de Physique Théorique,
des Particules et Modélisation (LPTPM)**



HEP activities in : LPTPM laboratory are including :

- Particle Physics**
- Theoretical Physics**
- Nuclear Physics**
- Astroparticle Physics**



Permanent people involved in HEP in LPTPM :

- Mohamed OUCHRIF (Head of the group)

- Jamal DERKAOUI

-Hassane DEKHISSI

- Fatiha MAAROUFI



PhD students involved in HEP activities:

- Morad Aaboud (ATLAS experiment) thesis defence next december
- Jihad Assahsah (ATLAS experiment) from december 2015
- Lahsen Hamam (Magnetic Monopoles) from december 2015



PhD students involved in HEP activities:

- Morad Aaboud (ATLAS experiment) thesis defence next december
- Jihad Assahsah (ATLAS experiment) from december 2015
- Lahsen Hamam (Magnetic Monopoles) from december 2015



HEP activities in LPTPM (1):

In ATLAS (Jihad and Morad presentations in this Workshop) :

Calibration of TileCal cells using pp collisions and cosmics
(uniformity, stability and energy scale of layers)

Determination of the response of the gap/crack scintillators
counters from W decays on muons.

Measurements of Top quark mass



HEP activities in LPTPM (2):

**Energy Losses of Monopoles, Dyons, Nucléarites and Qballs
(see Lahsen's presentation) :**

Calculation of the stopping power of these particles at different velocities.

Response of detectors to the passage of heavy particles

Possibilities of detection of Monopoles.



HEP activities in LPTPM (3):

High Energy Gamma Astronomy (TeV):

Simulation of High Energy emission from Gamma-rays bursts

Simulation studies of diffusive particle propagation (TeV – gamma emission) in the galactic center.

Futur CTA and stereoscopic systems shower studies



HEP activities in LPTPM (4):

Measuremt Radon concentration :

Calculation and Measurement of Radon concentration in water, air and ground in Oujda.

Estimation of variables affecting Radon exhalation flux.

Measurements by active detectors and possibility of a studies by passive detector too.



Open PhD positions :

We have two PhD positions opened actually :

The first position to work on ATLAS experiment.

The second to work on Radon Measurement.

Students interested can contact one of seniors in HEP group
for more details concerning these positions.