HEP-MAD 04

2nd High-Energy Physics Conference in Madagascar

27th September-2nd October 2004 (Antananarivo)

Opening Speech

Ladies and Gentlemen,
Mesdames et Messieurs,
Tompokovavy sy Tompokolahy,

1.Traditional Excuses before the speech

2.Acknowledgements

I wish to acknowledge the :

- Official
- Foreign Guest Participants
- Colleagues of the University and of different Superior School.
- Relatives and Friends

who are here for honouring this HEP-MAD 04 Conference which continues the former HEP-MAD 01 Conference held in Antananarivo in 2001.
I also thank the Presidence of the University, the Ecole Normale Superieure, the Ecole Polytechnique and the Institut Superieure Technique Nationale of Antananarivo, the CNRS of Montpellier, the Association Culturelle Malgache of Montpellier and the International Committee Members for their help in preparing this meeting.

3 . What is High-Energy Physics ?

This is the Highest Energy Research for exploring and understanding the properties of the universe and matter.
For this purpose, the researchers are reproducing in the laboratory the inverse phenomena of the Big-Bang happened milliard of years before.

Big-Bang photo

The exploration of the constituents of matter depend on the energy. Therefore, one needs powerful accelerators and experimental teams which are beyond the budget of a single country. As an example, the accelerator in Geneva involves different countries.

Accelerator photo

LEP

However, the theoretical research can be done by developping countries as one needs cheap materials :
Computers, Internet connection, Documents and the brain of the researchers.
In fact, we have already this technology in Madagascar.
At present, one found that quarks and leptons are the smallest constituants of matter:

Quarks & Leptons photo

They are gouverned by different forces :

- electricite : electromagnetic force
- radioctivity and beta desintegration : weak forces
- nuclear : strong force
- weight: gravity

Forces photo

According to the theoretical research, these different forces unify at higher energy

Unification photo

Therefore at such energies, one expects that the theory of the universe become simple and there are richer symmetry
(Super-Symmetry)

4. How useful are High-Energy Physics?

- Knowledge : We have just seen that High-Energy Physics is useful for our understanding of the properties and laws of the universe. In this respect, it is a Fundamental Research but not an Applied Science.
- Formation : The theoretical knowledge obtained from this fundamental research is necessary for forming student at the PhD level and for improving the scientific level of researchers and teachers. They will be useful for replacing the retired professors of our Universities. If you have travelled, you can notice that in famous Universities like Princeton, Harvard, Stanford,s.n.s and Superior School such as Ecole Normale Superieure and Polytechnique of Paris, sns, the researchers in Theoretical Physics teach there.
- High-Technology: The building of the different experimental materials develops Industrial HIGH-TECH (powerful computers, technology of semi-conductors and detectors,...) and there exists Partenariat between HEP-lab and big firms (Fujifilm, Microsoft,...)
- Applications to our everyday life:
    - The electricity which we use comes from the electron and electromagnetic force.
    - The technique of accelerator has been applied since a long time for building the TV which we watch everyday.
    - The treatment of cancer is done using protons .
    - Charpak detectors are used by the customs at le Havre for checking containers.
    - Researchers in Geneva have invented Internet Web pages for communicating data which everybody use today.

5. What we need for making Research in High-Energy Theoretical Physics?

- I wish to address to the authorities that :

This research does not need expensive materials except:

- Computers
- Internet Connection
- Documents
- Teachers (cooperation, ...)

and the office for putting such materials.

- I wish also to mention that this kind of research does not exist in the Indien Ocean and Afrika, except some small laboratories in South Afrika (Capetown) and Marocco (Rabat), as it has been dedicated since a long time to developed countries.
- I hope that I have succeeded to convince the different authorities and banks on the usefulness of a HEP Institute in Madagascar which is an opportunuity to have a unique Lab. in the Indian Ocean for enlarging our international cooperation and for a High-Tech formation.