15/05/2010

LIP International Advisory Committee
Meeting of 14th April 2010 in Lisbon

Present: E. R. de Arantes e Oliveira, C. W. E. van Eijk, C. W. Fabjan, P. G. Innocenti, L Rolandi

Apologies: H. Schopper

The LIP International Advisory Committee met in Lisbon on 14th April 2010 to review the 2009 results and discuss the 2010 programme of work.
Prior to the meeting, Committee Members received a detailed report on the 2009 work as well as a description of the programme for 2010.

In a formal session Committee Members met with members of the LIP Directorate, G. Barreira (Lisbon), P. Fonte (Coimbra), R. Marques (Coimbra) and M. Pimenta (Lisbon). S. Andringa and H. Wolters, secretaries of the LIP Scientific Committee also took part in the meeting. A report on the major activities of the Laboratory was given: results and perspectives were discussed.
In addition, Committee Members met with the LIP project leaders in a question and answer session on results and the ongoing programme.

Particle physics with accelerators and astroparticle physics were the major efforts in 2009.

In ATLAS and CMS, the LIP teams thoroughly tested with cosmic rays the components under their responsibility and were ready for beams late in 2009. Since then, the first physics results have been published. The groups should be congratulated for their participation in very topical and ambitious physics studies. The computing infrastructure required for analyzing the data is working well both in Coimbra and in Lisbon.

COMPASS at CERN had a successful period of data taking 2009. In addition to their continuing responsibility for the Detector Control System (DCS), the LIP team has been a leader in data analyses and interpretation of the results. It is deeply engaged in planning the next phase of the experiment, after the planned 2010 hadron run.

LIP Coimbra has completed successfully the construction and installation of the RPC-based time-of-flight system for HADES at GSI and is working at the commissioning of the whole system.

LIP Lisbon has been very active and successful in data taking and analysis at the Pierre Auger Observatory.

LIP Coimbra has continued its work in the search for WIMPs with ZEPLIN, with participation in data taking and analyses and has improved its visibility in the Collaboration.

In the SNO experiment, the LIP team has taken part in the neutrino oscillation analysis. For the follow-up experiment SNO+ the team has tested successfully a PMT calibration method based on optical fibers.

The Committee notes the efforts to simulate the effects of radiation environments on semiconductors and associated instrumentation. This work will probably also require a rather deep understanding of the solid state physics involved. However, detailed microscopic modeling would be a too comprehensive effort. Contacts to groups working in the field of radiation damage may be very useful.

A major concern arises from the recent failure of the AMS superconducting magnet to pass the qualifying tests for space flight. Beside financial implications for fixing the problem, this casts serious doubts on the feasibility of a launch in 2010, as planned.

The GRID computing infrastructure has operated both in Lisbon and in Coimbra with excellent performance and efficient links to other centers in the Iberian peninsula. It has been used for LHC computing, where it represents 1.7% of the world and 4% of the CERN Member States available CPU power. Only 30% of the installed capacity is offered to LHC computing, the remaining capacity is made available to other branches of research in Portugal.
The Committee reiterates its appreciation for the achievements of LIP in promoting, organizing and building a computing infrastructure for science in Portugal.

In the field of research to apply detector technology to medical physics the project on Positron Emission Mammography (PEM) has undergone some clinical tests. However, the availability of partners in the medical field has been limited in Lisbon and Porto and new tests are now foreseen in a Coimbra hospital. It is likely that the project will be concluded by a proof of feasibility. However, it is not expected that this prototype will be developed into a commercial product in the frame of the present collaboration.

The developments on PET technology by time-of-flight using resistive plate chambers has gained momentum after receiving recognition of being promising technique.

Research on new detector techniques has continued. Within the RD51 Collaboration the Coimbra group has made significant contributions to the field of Micro-Pattern Detectors.
The Committee encourages the groups concerned to follow closely all R&D opportunities arising from the LHC detector enhancements (sLHC), as well as from the linear collider programmes. Increased collaboration between Portuguese groups engaged in Detector R&D may be very desirable in view of the size of such projects and the needed impact in these large international efforts.

The programme promoted and lead by LIP for training of young Portuguese graduates, primarily at CERN, has continued and encouraging data on employment following training are now available.
The programme for training Portuguese high school teachers at CERN has been very successfully extended to include Portuguese speaking teachers from Brazil and Mozambique.
LIP is now also taking charge of the Industrial Liaison Officer with CERN and is driving numerous actions on technology transfer.

The Committee has stressed repeatedly the importance of the connection between Universities and LIP. In this spirit, the strong involvement of LIP in the International Doctorate Network in Particle Physics, Astrophysics and Cosmology (IDPASC) is very welcome.

The Committee strongly supports the initiative of LIP to establish a branch at the University of Minho, thus offering an opening towards research in particle physics to a large student base. This event triggers a reflection within the Committee on the dominant role of LIP in Particle Physics in Portugal and on the absence of a forum for a coherent discussion on funding of projects related to this field. The Committee feels that such a forum should be established under the leadership of LIP, to improve efficiency in the use of the available national funds and to avoid duplication.

The review of LIP as an Associated Laboratory has taken place in 2009 and the rating has been excellent. However, a second five year contract has not been signed so far, causing a delay on recruitment, vital for some projects.

The Committee regrets that the discussions on setting up a consortium grouping LIP with other Institution on a new site in Lisbon have come to a halt. In the absence of a new site, the proposed solution to rent additional space close to the present premises seems the appropriate step for the medium term.

The conclusions of the Committee are very positive with regards to the achievements in 2009 and to the proposed research programme for 2010.

E. R. de Arantes e Oliveira

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P. G. Innocenti.

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