18th May 2012

LIP International Advisory Committee
Meeting of 20th and 21st April 2012 in Lisbon

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

The LIP International Advisory Committee met in Lisbon on 20th and 21st April 2012 to review the 2011 results and discuss the 2012 programme of work.

Prior to the meeting, Committee Members received a detailed report on the 2011 results as well as a description of the activities planned for 2012.

Committee Members met with LIP Management: G. Barreira, P. Fonte, J. Mariano Gago, R. Marques and M. Pimenta. S. Andringa and H. Wolters, secretaries of the LIP Scientific Committee, also took part in these meetings. A report on the major activities of the Laboratory was given: by the LIP Management; results and perspectives were discussed.

Committee Members and LIP Management together met with project leaders to complement the information supplied in the written reports and to discuss matters arising. The Committee appreciated these very informative discussions and suggests to keep this format also for future meetings.

Finally Committee Members attended a presentation of LIP activities to the public. This meeting was the occasion for the LIP Management to thank E. R. de Arantes e Oliveira and H. Schopper, who had expressed the wish to step down from the LIP International Advisory Committee, for their invaluable support to Portuguese science through the adhesion of Portugal to CERN and the 25 years of LIP life.

The results obtained by ATLAS and CMS at the LHC in 2011and the promising start of data taking in 2012 were a key topic of the meeting. The hardware supplied by LIP to the two experiments performed very well and LIP staff has played an important role in data taking. Moreover, LIP physicists were very active in analysis, both at CERN and in Portugal, as well as in advancing the phenomenological understanding of processes. The computing facilities made available by LIP to the collaborations in Portugal performed reliably, exceeding the computing power which had been agreed initially. Some concerns for the future were expressed by LIP Management. As the current Maintenance and Operation Agreement with the Collaborations comes to an end soon, the present climate may not be very favorable for a smooth renewal.

The discussion of the ATLAS and CMS results was the occasion for raising important issues of continuity in the staffing and career perspectives of researchers active in large collaborations and of computer scientists working on the GRID infrastructure.
Traditionally, a scientific career is evaluated in terms of publications: In large collaborations the contributions of an individual may be outstanding, but are hidden in the sea of a huge list of authors. The criteria proposed by FCT for awarding contracts follows these traditional criteria and penalize scientists in large collaborations. LIP researchers have pointed out this situation in a letter addressed to FCT. The Committee supports the arguments put forward in the letter, which apply not only to Portugal but to HEP as a whole: Committee members will raise the point with instances like CERN, ECFA and EPS.

COMPASS at CERN took data with a muon beam in 2010 and 2011. The LIP team, responsible for the detector control system, has carried the heavy load of the long running time. In addition, it has been a leading partner in many topics of data analysis, in proposals for detector improvements and new physics perspectives.

LIP Coimbra has continued tuning the performance of the RPC-based time-of-flight system for HADES at GSI: results from test runs with high multiplicity events are better than anticipated. The group is preparing for physics, as data taking is just starting. The Committee is pleased to see a strengthening of the team, by the addition of some of the scientific staff presently on COMPASS, in view of a more aggressive participation in the HADES physics programme.

The computing infrastructure, based on GRID, has operated both in Lisbon and in Coimbra with excellent availability and performance, both for the LHC experiments in the first year of significant processing of real data, and for other branches of science in Portugal. In the discussion with LIP Management and staff the Committee has sensed serious concerns about the financing of the electrical power and hardware maintenance (spare and replacements parts), in addition to the staffing situation already mentioned: Non-renewal of current contracts is a threat to lose critical know-how.

LIP Lisbon has participated in data taking and field maintenance of the detectors of the Pierre Auger Observatory. It is active in simulation, analysis and in the R&D for improving the detector. These improvements include the use of large area RPCs, a technology well in hand at LIP Coimbra, for muon detection and the development of silicon photomultipliers and the associated read-out for photo-detection.

LIP Coimbra has concluded the search for WIMPs with ZEPLIN-III, with the last data recorded in 2011. The participation in LUX is now in progress with LIP contributing its know-how in dual-phase xenon detector technology and being responsible for other tasks (liquid nitrogen system, radioactive source calibration, software packages). The whole experiment will be installed between now and mid 2013.

For SNO+ the LIP team has manufactured and tested in the lab a significant fraction of the calibration system based on optical fibers. End of construction, testing and commissioning of the fiber system are scheduled for this autumn. The team has also been active in the preparation for physics.

AMS is taking data and the LIP team is present routinely in the control room at CERN. On top of the task of tending to the good performance of the RICH, the team participates in data analysis.

In the field of detectors for medical physics the project on Positron Emission Mammography (PEM) has undergone clinical tests with success and will continue along this line during the current year.

PET technology by time-of-flight using resistive plate chambers has entered the prototype phase for a human whole body scanner at LIP Coimbra. A prototype with reduced coverage has been built and is under test.

The LIP Coimbra group has continued research on new detector techniques. Within the RD51 Collaboration significant progress in the field of Micro-Pattern Gas Detectors has been made.

The group pursuing Gaseous Scintillation Proportional Counters (GSPC) has continued measurements on CH4 scintillation and developed a comprehensive simulation package of the process.

The neutron time-of-flight detector (NeuLAND) for use at FAIR, GSI, based on RPCs, has been simulated in great detail and prototypes are under construction.

The programme for training of young Portuguese graduates, primarily at CERN in engineering disciplines, has continued with remarkable success.

The programme introducing Portuguese speaking high school teachers to high energy physics at CERN has continued with an increasing participation.

Many outreach initiatives have been promoted by LIP with success and excellent visibility.

The Committee is concerned about the danger of fragmentation in the choice of research topics and sharing of funds for particle physics in Portugal and wishes to reiterate the suggestion made in its 2011 report, that LIP, as major player in the field, should have a coordinating role in the definition of the national particle physics policy and the corresponding resource allocation.

The appreciations of the Committee for LIP performance and programme of work are very positive and supportive.

E. R. de Arantes e Oliveira

C. W. Fabjan

P. G. Innocenti.

L. Rolandi

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