

Recommendations on the Governance of the LHC Physics Center

The LPC Governance Committee

Lothar Bauerdick/Fermilab, Joel Butler/Fermilab, Maxwell Chertok/UC Davis, Sarah Eno/U.Maryland, Dan Green/Fermilab, Joe Incandela/UC Santa Barbara, Boaz Klima/Fermilab, Harvey Newman/Caltech, Paris Sphicas/CERN and U.Athens, Avi Yagil/UC San Diego

Introduction and Executive Summary

In January 2007, the LHC Physics Center (LPC) Governance Committee was convened by the head of the recently formed Fermilab CMS Center, Lothar Bauerdick, and charged by Fermilab Director Pier Oddone to advise on the appropriate structure and leadership for the LPC. The ad-hoc committee had members representing the U.S. CMS Collaboration Board, the U.S. CMS Research Program, the Fermilab CMS Center, the CMS Physics Organization and CMS Executive Board, and members from the current LPC organization including the current LPC leaders, the chair of the current LPC Advisory Board and the leader of the LPC Physics Working Group. The group represents a good cross section of the university-based and lab-based sectors of U.S. CMS.

The objective of the committee was to propose a revised structure for the governance of the LPC. Goals were to provide transparency, ensure buy-in and ownership by all collaborating institutions and by CMS, to enable full participation of U.S. university groups in the LPC, and above all to help ensure that the LPC will be able to fulfill its primary goal of helping U.S. CMS scientists at universities and labs to contribute to CMS and to participate efficiently in CMS physics analysis.

The committee came to the following principal recommendations:

- The LPC should be led by two LPC Coordinators with staggered two-year terms.
- U.S. CMS should form an LPC Coordinator Selection Committee to identify a short ranked list of candidates that are nominated by the U.S. CMS Collaboration. The committee should have members from U.S. CMS at large and also ex-officio members, as described below. The Fermilab Director should appoint the LPC Coordinators from among the candidates on the short list.
- The LPC shall have a Management Board, the LPC-MB, chaired by the LPC Coordinators, to direct the LPC program of work, to draw up policies and to provide the forum for close coordination with activities in CMS, in U.S. CMS, and in the CMS Center.
- The U.S. CMS Collaboration should form an LPC Advisory Board LPC-AB. This board would provide advice to the LPC Coordinators, give regular feedback on LPC performance to the LPC-MB and report to the U.S. CMS Collaboration. It should be set up and charged by the U.S. CMS Collaboration Board.

The LHC Physics Center

The LHC Physics Center at Fermilab was created so the U.S. CMS community could provide the most effective service possible to the CMS experiment. Its goal is to ensure that many collaborators who prefer, or need, to remain mostly in the United States can contribute optimally to the many tasks required for the CMS experiment to produce physics, and be full members of the CMS team.

The LPC should be structured to achieve the following main goals, which are

- to facilitate the participation of U.S. physicists in CMS data analysis and scientific research;
- to provide services that simplify the lives of all U.S. CMS physicists interested in participating in CMS, in particular by helping U.S. CMS stay synchronized with CMS;
- to help to generate and maintain strong positive relationships between U.S. CMS and the CMS Collaboration;
- to provide help for a graceful transition between the currently operating experiments and CMS for those physicists participating in both, maximizing the manpower available to each during the transition period.

To address these goals the components of the LPC are:

- a "brick and mortar" location for CMS physicists to find experts on all aspects of data analysis, particle ID, software, and event processing within the U.S., working during hours convenient for U.S.-based physicists;
- a coordination point that allows physicists easier access to experts residing at sites throughout the U.S.;
- a place that encourages, fosters, and helps optimize distributed work and daily collaboration among groups residing at sites throughout the U.S., and groups overseas during feasible working hours, through training, guidance and regular use of software tools for analysis, collaborative tools and other mechanisms;
- a place for workshops/conferences/gatherings on LHC physics;
- a place to assist in the training of graduate and postgraduate scientists, as well as a center that fosters training for students and postdocs working at their home institutions;
- a center for the development of software and physics analysis in the U.S.;
- a place that provides opportunities for U.S. physicists who choose to work this way to organize their contributions to CMS physics: while organizing CMS physics is the purview of the CMS physics organization, the LPC could setup an appropriate and agreed upon structure to assist in this task;
- a "Remote Operations Center" that CMS physicists can use to participate in data taking and quality control for the CMS experiment in the U.S.;

LPC Organization

The LPC is a "virtual and co-operative organization" of U.S. institutions, which is hosted at Fermilab. The LPC stakeholders include the U.S. CMS institutions, the Fermilab CMS Center, the U.S. CMS Research Program, CMS management and the CMS physics organization

Support of the LPC includes voluntary efforts from U.S. institutions, and directed funding through the U.S. CMS Research Program and the CMS Center. Fermilab provides office and meeting space, administrative support, computing and meeting support, and other elements of infrastructure.

LPC Management Board LPC-MB

The committee proposes to form an LPC Management Board, to be a vehicle by which the LPC Coordinators will direct the LPC program of work, draw up policies and coordinate with CMS, with the Fermilab CMS Center, with the U.S. CMS Research Program and with the U.S. CMS Collaboration. It is a forum to discuss matters of substance and resources concerning the operation of the LPC.

The LPC-MB works to ensure that the stakeholders and providers of efforts and funding are fully informed. It takes responsibility that decisions are appropriately supported.

The LPC Coordinators chair the LPC-MB and appoint its members. The board meets regularly and is the main mechanism for the LPC Coordinators to involve the stakeholders. The LPC-MB is not an "oversight" body, but part of the LPC management structure, helping to coordinate the effort.

LPC Advisory Board LPC-AB

The committee proposes that U.S. CMS form an Advisory Board for the LPC, to provide a mechanism for the LPC to get collaboration-wide advice, and to assess LPC status and plans on a regular basis.

The committee realizes the setup of this board is the purview of the U.S. CMS Collaboration, and puts the following recommendations forward for consideration:

- It should meet about two times a year and keep good contact with the LPC.
- It should have members from CMS and eventually external experts.
- The board should receive reports on all aspects of the LPC and should, once a year, publicize its findings and recommendations

Members of the previous LPC-AB have successfully guided the LPC over its initial two years and we recommend that U.S. CMS enlist their help in setting up the new board.

The LPC Coordinators

To lead the LPC effort the committee proposes to continue to have two LPC Coordinators. Working with the LPC-MB, they will be responsible for setting up the internal LPC organization in a way that is flexible enough to respond to changes and

upcoming needs. They should develop the tools for coordinating the LPC efforts within the U.S. and with CMS.

The committee recommends:

- One of the two LPC Coordinators should be on the Fermilab staff as part of the Fermilab line management. The other should spend significant time at Fermilab and be a member of the US CMS university community.
- The terms of office should be two years and can be renewed once.
- For the initial appointments one coordinator will serve a one-year term.
- Thus, the terms are staggered. An LPC Coordinator selection will occur every year.

Selection of LPC Coordinators

The committee recommends the following procedure to appoint LPC Coordinators:

- U.S. CMS forms a selection committee with ex-officio and at-large members.
- Four at-large members are nominated by the U.S. CMS institutions and chosen by simple (email) voting in the U.S. CMS Collaboration Board.
- Ex-officio members are the U.S. CMS Collaboration Board Chair, the U.S. CMS Research Program Manager, the Deputy Research Program Manager, the Fermilab CMS Center Director, the CMS Spokesperson or delegate and the U.S. CMS Physics Coordinator.
- The selection committee solicits nominations from US institutions, encouraging discussion within the U.S. CMS groups, to get a good and broad list of candidates.
- The selection committee confirms that candidates are willing to serve if chosen, interviews candidates, vets candidates with Fermilab management, and creates a short list.
- The Fermilab Director appoints an LPC Coordinator from the short list.

Conclusion

The LPC Governance Committee has fulfilled its mandate and reached agreement on the above set of recommendations, that it has discussed broadly with members of its constituency, the U.S. CMS Collaboration, CMS, the U.S. CMS Research Program Management, and Fermilab management. Fermilab host lab management is invited to consider the proposals and to give additional input as deemed necessary, and to reach a decision on the future governance of the LPC.