

LIGO **LSC**

Relationship between the LSC and the LIGO Lab

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LIGO **LSC**

Present LIGO Organization

At last June's PAC meeting, Barry presented a critique of the present organizational structure of LIGO.

Key problems highlighted:

- Separation between Lab and LSC:
 - No review of overall LSC program
 - No natural way for full LSC participation in Adv LIGO
- No representation of LSC stakeholders on LIGO Oversight Committee.

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graph TD
    NSF[NSF] ---|Cooperative Agreement| Caltech[Caltech]
    NSF ---|Joint Oversight| MIT[MIT]
    Caltech --- OC[Oversight Committee]
    MIT --- OC
    OC --- IL[Reporting and Annual Peer Review]
    IL --- LSC[LSC]
    OC --- IL2[Reporting and Annual Peer Review]
    IL2 --- LIGOLab[LIGO Laboratory (MIT Subcontract)]
    LIGOLab --- LSC
    LIGOLab --- LAPAC[LIGO Lab Program Advisory Committee]
    LIGOLab --- LSP[LIGO Science Program]
    LIGOLab --- ALIP[Advanced LIGO Project]
    LIGOLab --- LO[Laboratory Operations]
    LO --- LLO[LLO]
    LO --- LHO[LHO]
    LO --- DS[Detector Support]
    LO --- DAS[Data Analysis Support]
  
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What the PAC said in June

“We commend LIGO's leadership for thinking proactively at this time about its management structure, oversight, and relationship with the LSC...”

“With respect to the LSC, the PAC recognizes the advantages that could be realized with the Director's proposal to bring the LSC into the LIGO Laboratory. At the same time, we are sensitive to the potential dangers of ending the LSC's present independence, with the many benefits in terms of innovative thinking that status brings.”

“The PAC does not take an explicit position on the proposal to bring the LSC "inside" the LIGO Laboratory. The PAC encourages LIGO and the LSC to identify all of the desired outcomes from its organizational structure and all of the undesired, potential consequences. ... In addition, the PAC urges LIGO and the LSC to 'benchmark' existing relationships between major research facilities and projects and their user groups,”

Process over the summer

An *ad hoc* LSC committee (Bruce Allen, Sam Finn, Joe Giaime, Keith Riles, Norna Robertson, David Shoemaker, PRS) met several times over the summer.

The committee

- » Made a list of desired outcomes of reorganization,
- » Investigated the structure of a number of other organizations,
- » Explored several possible organizational models:
 - Tighter integration
 - More independence
 - Multiple collaborations (for LIGO-I, AdvLIGO, LIGO-III)
- » Prepared a presentation for the August meeting of the LSC Council.

A vigorous discussion was held at the LSC Council.

Since the August LSC meeting

The *ad hoc* committee added Barry, Stan, and Kip as members. It then worked on distilling a proposed consensus view. Its key features were:

- » Staying with Caltech/MIT as the hosts of LIGO
- » Working with the Caltech administration on
 - Expanding the membership of the LIGO Oversight Committee
 - Finding a mechanism to allow distribution of responsibility and authority to LSC members outside of the Lab
- » Adopting the “tighter integration” model.

Discussions with Caltech administration (Tombrello) and with existing Oversight Committee have been held. Results are very encouraging.

A subcommittee started work on revising the LSC Charter, starting with a new Preamble.

A draft of the new preamble was discussed at a telephone meeting of the LSC Council.

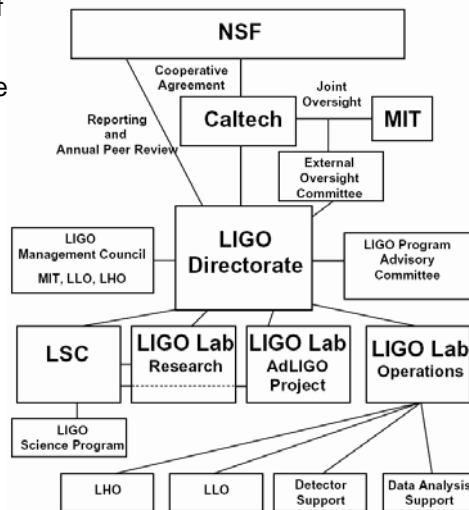
Revised versions of the Preamble and Barry’s management memo are the best summaries of where we have come to date.

Proposed New LIGO Organization

This diagram summarizes most of the new features on the table.

While not final, most aspects have been well discussed, and have garnered general assent.

We think it addresses the key problems of the previous arrangement, while keeping what has been working well.





Integration of LIGO Lab and LSC

- LSC and LIGO Laboratory report to expanded Directorate
 - » LIGO Director, Deputy Director, LSC Spokesperson
 - » Share responsibility for annual NSF reporting, organizing reviews, PAC, agreements with other Labs, major technical decisions, ...
- LSC retains internal governance
 - » Elected Spokesperson, governing council
 - » Working groups, data analysis groups
- Integrated Advanced LIGO project management
 - » LSC members to take subsystem responsibility/authority within project organization
- Coordinate LSC and LIGO Lab research activities to ensure similar review processes and levels

Advanced LIGO Organization

- Advanced LIGO will have traditional project-type organizational structure
 - » WBS linked to schedule and deliverables
 - » Task leaders with defined work packages
 - » Hierarchical reporting
- Many task leaders already identified
 - » Will draw on LSC for some of these positions
 - » Integration enables LSC members to take responsibility/authority for project tasks
 - » Key non-lab members will have appointments at Caltech as Visiting Associates. (This gives them faculty status.)
- Will coexist with Laboratory operating structure
 - » Plan to have most individuals dedicated to one activity or another— not shared between Project and Operations organizations

 **LIGO** LIGO Management Council  **LSC**



LIGO Oversight Committee raised the issue of ensuring a role for MIT in LIGO management.

LHO and LLO also need representation in key issues, in a somewhat parallel manner.

Proposed solution (from the management memo):

“The LIGO Directorate will consult with the LIGO Management Council, consisting of the Heads of the MIT group and the LLO and LHO Observatories, on major decisions. The Council advises and participates in e.g., the preparation of the annual workplan, the strategy for staffing across the Laboratory, and decisions on infrastructure investments. The MIT group head represents MIT’s institutional role in the operation of the Laboratory.”

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 **LIGO** LSC MOU Reform,  **LSC**
Internal Program Review

In February, we will start a new method for reviewing LSC members’ MOUs with LIGO.

All MOUs will be read together at an annual meeting of a committee of chairs of LSC working groups and data analysis groups, plus Lab representatives.

This will enable the LSC to look at the program as a whole, looking for duplication or gaps. It will also institutionalize the idea that the working leadership of the LSC should judge (and give feedback on) the work each group is doing, in comparison with its commitments. This will be a key part of enforcing planning and deadlines.

This process will lead to the production of an annual report and (the following year’s) work plan.

Q: How would the PAC like to link to this process?

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Expanded Oversight Committee

- Expanded membership
 - » Core membership appointed by Caltech and MIT administrations
 - » Representatives from “major stakeholders” from LSC
 - Example: foreign contributors to Advanced LIGO
 - » Technical advisors selected from the LSC and LIGO Lab
- Reports to Caltech, MIT administrations,
 - » Plus LSC major stakeholder institutions, where appropriate
- Main responsibilities
 - » Insure that management compatible with Caltech/MIT standards
 - » Monitor progress of the scientific, financial and scheduling aspects of all large-scale LIGO activities
 - » Recommendations to insure that the project has adequate institutional support
- Internal Caltech/MIT issues dealt with by subcommittee of Caltech/MIT appointees

Relationship with GEO

1. MOU revision regarding data analysis, to align it with our current practice. Guiding principles:

“Analysis of data from the LIGO and GEO interferometers will be coordinated by the LIGO Scientific Collaboration. GEO and LIGO should be considered to constitute a single network of three sites and four interferometers.”
2. Work of GEO member groups will be reviewed by the same MOU review process being invented for the rest of the LSC.
3. We still need to work some delicate issues about how to describe the close working relationship between GEO and LIGO, especially concerning the need for some independence of GEO from LIGO. (See present draft of LSC Charter Preamble.)
4. GEO is firmly committed to this, even while pressure for GEO to be oriented more toward Europe looms on the horizon.



Status of Restructuring



- Still a work in progress
- Our timescale for having restructuring in place is coincident with operations renewal proposal
- LIGO Laboratory management support the changes
- General outline accepted by Caltech and MIT administrations
 - » Consistent with administrative practices elsewhere at Caltech
- Current oversight committee in broad agreement
- Ad hoc committee drafting a new LSC charter
 - » Consistent with new relationship

PAC advice is welcomed.

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