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# Planning and Implementation Strategy for Advanced LIGO

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LSC Meeting

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# Ancient History

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- 1997 – 1998 Lab and LSC R&D Proposals
  - » Advanced R&D funding initiated by NSF
- November 1998 LSC White Paper
- November 1999 LSC White Paper and LIGO II Conceptual Project Book
  - » Peoples' Panel review favorable
  - » NSF decision to support R&D from program funds prior to construction funding ✓
- R&D program organized with a recognized reference design and schedule
  - » International partnership



# LIGO Renewal Proposal Background

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- Submitted by Lab in December 2000 but closely coordinated with LSC
- Included
  - » operation of LIGO I detectors and observational science
  - » and absorbed advanced R&D activity into the same proposal
- R&D program took most subsystems of Advanced LIGO through prototypes and to Final Design
  - Some long lead time purchases were included
  - Major equipment funding for collaborative LSC work was included
- Assumed R&D would take us to readiness for construction funding in FY2004 and installation in 2006



# LIGO Renewal Proposal Review

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- Funding requested was an increase over prior level
- Separate reviews held of LIGO operations and R&D
- Combined review extremely positive and also positive on balance between R&D and operations
- Bush administration requests poor NSF budget and stops new NSF construction starts (MRE projects)
- LIGO renewal funding increase put under pressure due to proposed budget levels
- Submission of Advanced LIGO MRE construction proposal for 2004 start put under pressure from Bush logjam



# Working Plan for Advanced LIGO MRE Submission

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- Assumed 2004 funding start
- Conservative assumption has been submission this fall
  - » NSF review in winter
  - » NSF MRE panel review in early 2002
  - » NSF Director's Review Board in spring 2002
  - » NSB review by fall 2002 for 2004 budget inclusion
- Work required by us
  - » Update proposal
  - » Detail the cost estimate
  - » Adjust scope to account for costs and scientific reach



# What Have We Been Doing Lately?

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- Emphasis placed on LIGO renewal proposal
  - » Clean separation maintained between this proposal and advocacy of MRE project
- R&D program has been proceeding
  - » Lot's of good progress, some delays
  - » Desire to minimize LIGO I impacts
- Cost estimate development has moved forward
  - » SEI, SUS, PSL, COC, IO, AOS detailing and/or reviews have been held
  - » Cost estimates are coming in quite high
- We are not ready to confront scope decisions
  - » Number of interferometers
  - » Trimming features to control costs



# Today's Perspective

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- Last week's positive NSB action on renewal puts uncertainty behind us
- Lab definition of initiating Science Run helps focus efforts
- Congress appears to be more supportive of NSF
  - » Funding likely to be higher
  - » MRE logjam reduced but not eliminated
  - » NSF facing definition of MRE program and facility management



# Forward Strategy

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- Use new definition of funding level to take a new look at R&D schedule
- Complete cost estimate and scrub by year end
  - » Adjust scope and schedule together with LSC
- **Coordinate NSF review plan with NSF**
- **Decision on submission later in the year**
- **Produce science with LIGO I**
- **It is most important that we now move beyond the positive decision on the renewal proposal to educate the NSF leadership, the NSB and Congress on the long term perspective for the LIGO program**