

MIT LIGO: Global Functions and Responsibilities

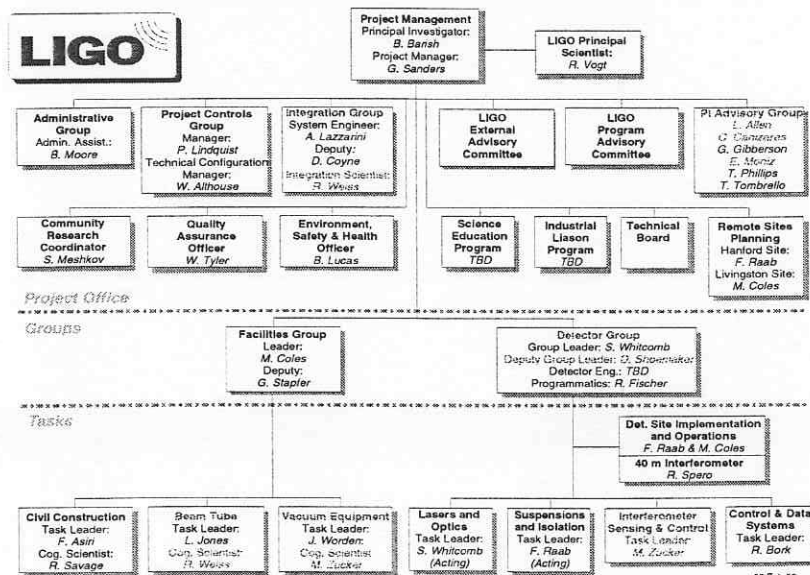
M. Zucker
3/20/96

- LIGO Facilities Group science liaison
 - ›› Beam Tubes Cognizent Scientist: R. Weiss
 - ›› Vacuum Equipment Cognizent Scientist: M. Zucker
- LIGO Detector Group management
 - ›› Deputy Group Leader: D. Shoemaker
- LIGO Systems/Integration group
 - ›› Integration Scientist: R. Weiss
- LIGO Technical Review Board & Change Control Board
- MIT Group management & infrastructure: D. Shoemaker



LIGO Project Organization

(MIT tasks & personnel highlighted)



Facility Group Cognizent Scientists: Task Functions

- Responsible to Facility group for:
 - ››Communicating Facility issues to other scientists
 - ››Soliciting science support where needed
 - ››Modeling, analysis & laboratory testing
- Responsible to Detector group for:
 - ››Establishing specifications which meet science requirements
 - ››Monitoring detailed implementation for unforeseen science impact
 - ››Communicating science issues & concerns to Facility group
- Responsible to Management for:
 - ››Providing facilities with optimal scientific capability within constraints



Example Science Issues: Beam Tubes

- Residual gas - laser beam interaction model: Pressure Specification
- BTD and Qualification Test experiment design & data analysis: low H₂ steel process development
- Surface analysis techniques for contamination monitoring
- Leak localization by multiparameter χ^2 fit
- Light scattering/tube wall motion analyses



Example Science Issues: Vacuum Equipment

- Outgassing & contamination limits
- Acoustic noise & vibration analysis
- Detector interface specification & envelope dimensions
- Operation flexibility & access
- Provisions for detector evolution, expansion



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LIGO-G960038-00-M

Integration Scientist: Task Functions

- Establish, maintain adherence to LIGO scientific objectives
 - ›› LIGO Science Requirements Document (*LIGO-E950018-00-E*)
 - ›› Monitor “requirement flowdown” to Facility & Detector systems
- Systems/Integration Group science support
 - ›› Beam tube baffle modeling
 - ›› Facility acoustic noise, EMI limits
 - ›› Facility & detector diagnostics design
 - ›› Beam tube optical backscatter characterization
 - ›› Beam tube baffle material outgassing tests



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MIT Group Management & Infrastructure

- Strategic planning (D. Shoemaker & R. Weiss)
- Organization of group recruitment & hiring
- Staff supervision
- Development & maintenance of infrastructure
- Principal interface with CSR:
 - ››Facilities
 - ››Finance
 - ››CSR services
- Safety planning and management



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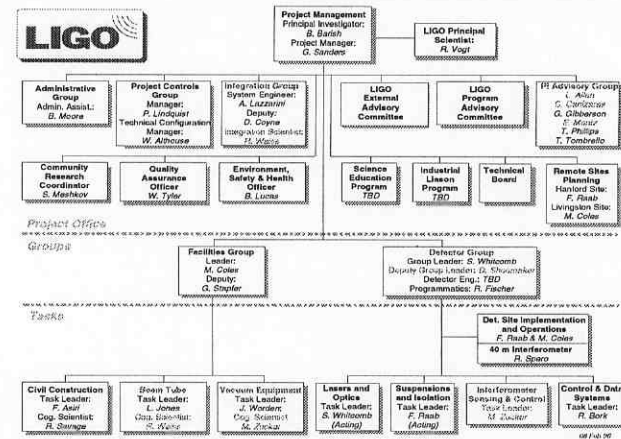
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