LIGO Science Requirements Document

Albert Lazzarini

LIGO Science Requirements Document

- Operations
    - searches
    - high on-line availability
    - time for development of improved detectors
    - allocation of observing time by PI/PAC/NSF
    - operational modes
        - 3x ; $T_{online} > 75\%$
        - 2x: (WA-LA); $T_{online} > 85\%$
        - 1x: $T_{online} > 90\%$
- Data Formats -- compatibility with other gravitational wave detectors & particle detectors

- Enabling research & facilities
    - long-term development of advanced detectors
    - university-based interferometers
    - LIGO Research Community

LIGO Science Requirements Document

- Purpose

  >> Defines the scientific missions and sensitivity goals for LIGO

- Requirements

  >> Detector description

  >> Observatory locations

  >> Dimensions

  >> Joint observations

  >> Configuration & Parameters (length, power, storage times, etc.)

  >> Sensitivity
    - Initial detectors
    - Advanced detectors

  >> Extensibility
    - Natural limits
    - Gravity gradients
    - SQL
    - Eventual expansion
      - Aperture & baffling
      - Facility layout