The Large Synoptic Survey Telescope (LSST) will be a resource for the entire US scientific community, with broad access to the data and no proprietary data period. The combination of depth, sky coverage, and cadence of the LSST are unprecedented, and the project actively seeks input from the community on innovative scientific applications for the deep multi-wavelength data.

The LSST will make it possible to pursue many other research programs, and the public nature of the data will allow both the astronomical and high-energy physics community to carry out this science.

A series of LSST Science Collaborations will:
- Develop the detailed science case within each scientific area, and develop analysis software to accomplish this science;
- Obtain necessary precursor and auxiliary data needed for scientific goals, such as calibration data for photometric redshifts;
- Work with the LSST infrastructure teams to refine plans for image processing, database management, observing strategy/cadence, calibration, and other aspects of LSST;
- Play a crucial role in the scientific commissioning of LSST once data begin to flow;
- Write many of the core LSST science papers!

**LSST Science Collaborations and their chairs**

1. Supernovae: M. Wood-Vasey (CfA)
2. Weak lensing: D. Wittman (UCD) and B. Jain (UPenn)
3. Stellar Populations: Abi Saha (NOAO)
4. Active Galactic Nuclei: Niels Brandt (Penn State)
5. Solar System: Steve Chesley (JPL)
6. Galaxies: Harry Ferguson (STScI)
7. Transients/variable stars: Shri Kulkarni (Caltech)
8. Large-scale Structure/BAO: Andrew Hamilton (Colorado)
9. Milky Way Structure: Connie Rockosi (UCSC)
10. Strong gravitational lensing: Phil Marshall (UCSB)

171 scientists have signed on already, from member institutions and LSST project team. Additional applications from the community will be solicited in the next few months. Ideas for additional science collaborations actively welcomed.

**LSST Data Management**

Fusion of astronomical algorithm and high performance computing communities.

Data access: The LSST is open-source open-data. The LSST project has begun supplying source code to others. LSST is a community collaboration and data will be promptly provided to the community, with no proprietary data period.

**6-band Survey: ugrizY 320–1050 nm**

- **Sky area covered:** 20,000 deg² / 0.2 arcsec / pixel
- **Each 9.6 sq.deg FOV revisited:** 10,000 deg² in North for full ecliptic plane coverage
- **Coadded limiting magnitude:** 26.2–27.6 AB magnitude @5y
- **23-25 AB mag in 30 second visit**
- **Photometric calibration:** 0.01 mag requirement, 0.005 mag goal
- **Astrometric calibration:** 10 mas/vis, proper motions to 0.2 mas/year
- **Galaxy density:** 50 galaxies/arcmin²
- **3 billion galaxies with color redshifts**
- **Full system simulations**

We have developed an end-to-end simulation of the LSST system, including the effects of atmospheric propagation, optical transfer function, detector properties, and science signals of interest (in particular weak gravitational lensing).