The Giant Magellan Telescope Project: Science and Status

GMT is an international collaboration to design, build, and operate a 25m diameter telescope with the goal of leading ground-based astrophysical research in exoplanet science, general astrophysics, and cosmology at optical-IR wavelengths. The consortium includes partners in Australia (ANU and Astronomy Australia Limited), the Korean Astronomy and Space Science Institute, University of Sao Paulo, and several US universities and research institutes. At the core of the GMT design is its 7-segment primary mirror, which is comprised of 8.4-m diameter mirrors fabricated at the Steward Obs. Mirror Lab. Also integral to the design is an adaptive secondary mirror that will provide Adaptive Optics capabilities – from wide-field, ground layer AO to diffraction limited AO – with nearly 100% sky coverage. The combination will provide collecting area and diffraction-limited image quality that are an order of magnitude better than what is obtained by current facilities. The project has recently passed an extensive series of design and cost reviews, and is preparing to move into the construction phase.

In this talk, Dr. Bernstein will give a technical overview of the GMT project and discuss the science cases and goals that are driving its design. She will also describe the current status of the project and the first generation instruments that are now under development.