



THIRTY METER TELESCOPE

Discussion: Prioritizing and developing TMT's future-generation instrumentation

Some potential types of studies

- ◆ Feasibility studies of specific proposed instruments
- ◆ Roadmaps comparing different technical approaches (strengths and weaknesses)
- ◆ Science potential of a new instrument capability
- ◆ Key technology testbeds e.g. new coronagraphs, wavefront sensors, algorithms, etc.

Possible metrics (subset of SAC's metrics)

- ◆ Addresses scientific areas that are high priority in TMT Detailed Science Case
- ◆ Technical feasibility, budget, schedule
- ◆ Broad community support for the science
- ◆ Participation from across the TMT partnership
- ◆ Complementary with other TMT instrument capabilities
- ◆ Synergies with space facilities (currently planned and future)

What would you like to see included in the Call for Mini-Studies?

- ◆ Synergy with space missions
- ◆ Trade between instrument flexibility and waiting to set parameters till later
- ◆ Use cases from the observer's point of view (planning tools, ETCs, pipelines, other post-observation capabilities)
- ◆ What data are required/useful from other missions such as LSST
- ◆ Characterize new technologies especially performance over time
- ◆ Photonic lanterns? How far to the blue? Tech development study

- ◆ What observing modes? Queue? Some other type of flexibility?
 - Weather, seeing, PWV
 - Priority Visitor Mode (Gemini) – hybrid or bi-modal
- ◆ What fraction of the time would your instrument be useable on the telescope?
- ◆ Funding for workshops in order to build partnerships and collaborations
- ◆ Training opportunities for instrument teams

Notional 2011 SAC list of instruments/capabilities

- ◆ High-Resolution Optical Spectroscopy (HROS-UC-2)
- ◆ High-Resolution, Near-IR Spectroscopy (NIREs-B)
- ◆ Multi-IFU, Near-IR Spectroscopy (IRMOS-N + AO upgrades)
- ◆ Adaptive Secondary Mirror (AM2)
- ◆ Mid-Infrared, High-Resolution Spectroscopy (MIREs)
- ◆ High-contrast imaging (PFI)
- ◆ Multi-IFU, Near-Optical Spectroscopy (VMOS + AO upgrades)
- ◆ High-Resolution, 5-18 μ m Spectroscopy (NIREs-R)