



Director's Office

A Science Working Group for GSMT

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Sometimes you can actually see progress being made toward the goals of the astronomy and astrophysics Decadal Survey. The NSF has taken another step along the way this spring by authorizing NOAO to form a Giant Segmented Mirror Telescope (GSMT) Science Working Group.

This working group is intended to be the community-based body that will develop the science case and justification for any federal investment by NSF or other agencies in GSMT. The Science Working Group (SWG) will represent the US community in assembling relevant partnerships for describing and advocating the appropriate federal role in this project. This guidance is intended to be a product of all public, private, and international groups that expect to play a role in the GSMT. SWG members are expected to actively participate in technical, observational, and theoretical astrophysical studies that will be useful in defining and focusing the scientific objectives for the GSMT.

Although not limited to these areas, the GSMT SWG has been assigned the following specific tasks:

1. Develop the science cases and scientific priorities for a GSMT, and refine the science goals outlined in earlier reports prepared by participating institutions. This includes evaluation of the likely impact that advances expected with existing and near-term studies will have on the science goals of GSMT, along with consideration of the costs and benefits of alternative approaches. It also includes working with the scientific community to ensure that the goals continue to be exciting, important, and representative of the highest scientific priorities for a general purpose optical/infrared observatory.
2. Develop a "flowdown" from key science to top-level engineering goals and requirements. Develop performance metrics for the GSMT telescope, instrumentation, software, operations, and other aspects of the program; and, assess performance against these metrics.
3. Identify the key instrumentation capabilities for a GSMT. Review currently proposed science instruments and propose alternate designs or complementary instrumentation that would enhance scientific usefulness, improve observing efficiency, or lead to potential cost reduction.
4. Establish the scientific relationship between GSMT and other major facilities (NGST, ALMA, SKA, TPF, etc.)
5. With specific reference to the adaptive optics (AO) roadmap, establish the relationship between specific AO capabilities and science outcomes.
6. Identify the priorities for key technology developments.
7. Provide scientific assessments of design concepts and implementation plans for their impact on the overall scientific performance.
8. Assemble appropriate community-wide partnerships for preparation of any proposals to NSF for funding activities related to GSMT.

If you wish to offer your services to the GSMT SWG, please send me a brief proposal outlining your expertise in any of the relevant areas.

As you can see from the charter, this is a serious effort that will measurably advance the GSMT, and help to shape the future. We anticipate that the SWG will accomplish most of its creative work off-line and via monthly telecons, but three physical meetings a year will be required. NOAO will meet the travel expenses of the SWG.

A number of invitations to join GSMT SWG have already been made, and I hope to announce the composition of the group toward the end of July. NOAO staff will not be members of GSMT SWG, but a small support group will be formed to assist and to ensure that assignments the SWG gives to NOAO engineers are kept on track.

What is most heartening about NSF's move to initiate a Science Working Group is that it is a clear sign of interest from the public side of the optical/infrared community in fulfilling the Decadal Survey's plan for the GSMT to be a public-private partnership.