



Dr. John O'Meara  
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Dear Dr O'Meara:

The National Science Foundation (NSF) Division of Astronomical Sciences (AST) and the US Department of Energy (DOE) request that the Astronomy and Astrophysics Advisory Committee (AAAC) establish an ad hoc subcommittee to consider the evolving roles of the Gemini, Blanco, and SOAR Telescopes.

### **Background**

As emphasis on time domain, multi-wavelength, and multi-messenger science increases and the LSST comes on line, the role and utility of the Gemini Telescopes and the complement of Southern Hemisphere moderate aperture ground-based optical/IR telescopes will be evolving. The 2015 NRC Report on Optimizing the U.S. Ground-Based Optical and Infrared Astronomy System recommended (4d):

- The National Science Foundation should direct its managing organizations to enhance coordination among the federal components of medium- to large-aperture telescopes in the Southern Hemisphere, including Gemini South, Blanco, the Southern Astrophysical Research (SOAR) telescope, and the Large Synoptic Survey Telescope (LSST), to optimize LSST follow-up for a range of studies.

This suite of ground-based telescopes can serve multiple scientific purposes by:

- Offering synergy with LSST for broader time-domain investigations and DOE dark energy studies.
- Providing hemisphere-specific applications, such as Local Group galaxies and specific star-forming regions, or optimizing sky coverage with respect to ALMA and LSST.
- Supporting NSF's current priority of multi-messenger astrophysics, combining electromagnetic detections with gravitational waves and energetic particles.
- Providing an all-sky capability to maximize the return from NASA astrophysics missions.

Although the upcoming Decadal Survey will define the scientific priorities for the field for the next ten-year timescale, processes internal to the Gemini and SOAR partnerships dictate the need for advice on a shorter timescale. The partners must express their intentions about renewing the Gemini International Agreement in November of this year, so that they are in a position to negotiate a new agreement for operations and development of both Gemini-North and Gemini-South telescopes post-2021. By late 2019 the NSF will need to determine its position on supporting operation of SOAR beyond 2020.

### **Charge and Purpose**

The ad hoc subcommittee is requested to develop an assessment of the scientific utility and priorities

for the US community for the Gemini Telescopes and the complementary Blanco and SOAR 4-meter telescopes for the first half of the upcoming decade. The purpose is to provide NSF timely advice on the renewal of agreements for two of the facilities and DOE on whether there is need and priority for use of these facilities to enhance Dark Energy science investigations.

Specifically, the ad hoc subcommittee is asked to deliver:

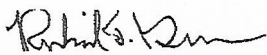
- An assessment of the degree to which each of the telescopes provides critical complementary data for LSST, multi-messenger / time-domain science, and dark energy science.
- A short list with description and evaluation of the highest impact science in other areas enabled for US observers by the facilities (separately or in combination), given the planned instrument complements.
- An assessment of whether the current US share is adequate to accomplish the highest impact scientific programs identified in the two activities above.
- Identification of modes of multi-facility use that could be further enhanced or have competitive access streamlined (e.g., GRB follow-up).
- Aspirations for improved instrumental or adaptive optics capabilities critical for the highest priority programs.

The subcommittee is therefore requested to report its preliminary findings to the AAAC at a special meeting in very early November, 2018, with a final report to be presented at the meeting in February, 2019. In accordance with Federal Advisory Committee Act (FACA) rules, the report will be discussed and approved by the AAAC at a public meeting before formal transmittal to the agencies.

We appreciate your effort in establishing this subcommittee. Its deliberations and recommendations will inform the agencies on the strategic needs for the federal ground-based OIR telescope complement and contribute to the agencies' planning activities. The formation of the ad hoc subcommittee does not imply any commitment by the agencies to specific funding or renewal of agreements for these telescopes.

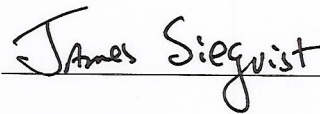
We look forward to working with you in this important endeavor. The point of contact for each of the agency participants are listed below.

Sincerely,



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Richard Green  
Division Director  
Div. of Astronomical  
Sciences, NSF



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James Siegrist  
Associate Director of Science  
for High Energy Physics, DOE

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12 August 2018

Date

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15-Aug-2018

Date

## Agency Points of Contact

For NSF: Dr. Chris Davis  
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Division of Astronomical Sciences  
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### Supporting documentation:

- Gemini Board document “Beyond 2021: a Strategic Vision for the Gemini Observatory”
- Gemini International Agreement
- Report on the Kavli Futures Symposium: Maximizing Science in the Era of LSST (Oct 2016)
- Optimizing the U.S. Ground-Based Optical and Infrared Astronomy System (“Elmegreen Report”)
- A System for LSST Follow-up (AURA Observatory Council slide set.)
- Dark Energy Science white papers