



UNIVERSITY OF CALIFORNIA OBSERVATORIES/LICK OBSERVATORY
DEPARTMENT OF ASTRONOMY AND ASTROPHYSICS

SANTA CRUZ, CALIFORNIA 95064

May 22, 2008

Dr. Arden L. Bement, Jr., Director
National Science Foundation

Dr. Michael D. Griffin, Administrator
National Aeronautics and Space Administration

Re: AAAC Transmittal of the ExoPlanet Task Force Report

Dear Dr. Bement and Dr. Griffin:

In early 2007 at the request of your agencies, the Astronomy and Astrophysics Advisory Committee (AAAC) established a subcommittee, the ExoPlanet Task Force (ExoPTF), to advise NSF and NASA on a 15-year program of ground-based and space-based searches and characterization of exoplanets, including planetary systems, Earth-like planets and habitable environments around other stars.

The ExoPTF report (download at: <http://www.nsf.gov/mps/ast/exoptf.jsp>) has been accepted and transmitted to your agencies by the AAAC. The AAAC was very impressed with the breadth of the expertise represented on the Task Force, the depth of their insight into the field, and the leadership of their Chair, Jonathan Lunine. Their report provides an impressive framework for advancing a very important area of scientific research. The AAAC would like to commend the ExoPTF for developing a broad and ambitious strategy, while being cognizant of the funding and technical challenges.

The ExoPTF built their deliberations on invited presentations and a large number (85) of "white papers" received from the science community. The ExoPTF report:

- (1) Identifies three fundamental scientific questions that provide a framework for planet searches and studies, with three sequential 5-year phases, over the 15-year program. Scientific milestones and technology-development benchmarks are indicated for assessing the readiness of each subsequent 5-year phase.
- (2) Recommends a pragmatic, phased two-pronged science strategy that utilizes existing and new facilities, with small to medium to large projects and missions, on the ground and in space, while progressing to programs of increasing sophistication, technical challenge and cost.
- (3) Focuses on the goal of finding and then characterizing planets with the mass and size of our Earth, but recognizes the diversity of the scientific quest to understand planet formation in all its aspects.
- (4) Provides guidance on the major space missions for finding and characterizing Earth-like planets, namely an astrometric mission and a direct-detection mission. The recommendations on these potential missions require deliberation by the community prior to consideration by the 2010 Astronomy and Astrophysics Decadal Survey,

particularly to provide added definition of the astrometric mission and its relationship to the current Space Interferometry Mission (SIM) and SIM-Lite, and of the diverse approaches for direct-detection.

The AAAC looks forward to working with the agencies in using the ExoPTF report to enable a cost-effective, competitively-selected and coordinated program of research into one of the greatest scientific and technical challenges of our time, the search for habitable planets.

Sincerely yours, on behalf of the Committee,



Garth D. Illingworth,
Chair, Astronomy and Astrophysics Advisory Committee

Cc:

OSTP: John Marburger, John Henry Scott, Jean Cottam

OMB: Amy Kaminski, Joel Parriott, Michael Holland

NSF: Kathie Olsen, Tony Chan, Craig Foltz, Wayne Van Citters, Eileen Friel, Dana Lehr, Michael Briley

NASA: Ed Weiler, Jon Morse, Michael Salamon, Paul Hertz, Eric Smith, Stephen Ridgway, Zlatan Tsvetanov

DOE: Dennis Kovar, Kathy Turner

ExoPTF: Jonathan Lunine, Debra Fischer, Heidi Hammel, Thomas Henning, Lynne Hillenbrand, James Kasting, Greg Laughlin, Bruce Macintosh, Mark Marley, Gary Melnick, David Monet, Charley Noecker, Stan Peale, Andreas Quirrenbach, Sara Seager, Josh Winn

NAS: Craig Hogan

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