



NATIONAL SCIENCE FOUNDATION

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OFFICE OF THE
ASSISTANT DIRECTOR
FOR MATHEMATICAL AND
PHYSICAL SCIENCES

March 28, 2005

Dr. W. Carl Lineberger
Joint Institute for Laboratory Astrophysics and
Department of Chemistry and Biochemistry
440 UCB
University of Colorado
Boulder, CO 80309-0440

Dear Carl,

This letter is to make official my request that the *NSF Advisory Panel on Future Support for High Magnetic Fields* be a subcommittee of the MPS Advisory Committee (MPSAC). I want to express my thanks to you for agreeing to this request.

This panel is to provide advice to the National Science Foundation on the renewal/recompetition of the National High Magnetic Field Laboratory with a charge as detailed in the attached document. Dr. Jean Futrell, a member of the MPSAC, serves on this panel.

At the April 2005 MPSAC meeting we will provide an update on the progress of the panel, with discussion and acceptance of the report either at the November 2005 meeting or (more likely) at a teleconference meeting in September 2005.

Sincerely yours,

A handwritten signature in black ink, appearing to read "MST", with a long horizontal stroke extending to the right.

Michael S. Turner
Assistant Director

Attachment

NSF Advisory Panel on Future Support for High Magnetic Fields

I. Background

The National High Magnetic Field Laboratory (NHMFL) was established in 1991. In October 2000 the National Science Board approved a five-year award for the operation of NHMFL. This award, extending through December 31, 2005, authorized up to \$117,500,000 over 60 months for NHMFL operations. On 29 March, 2004 the NSB approved a two-year extension of the current Cooperative Agreement “*to allow time for a National Academy of Sciences panel to complete a report on high magnetic field science and technology and for the National Science Foundation (NSF) to convene a ‘blue-ribbon’ panel to recommend the best course of action concerning recompetition of the NHMFL.*” The NSB authorized funding during this period in an amount not to exceed \$52,500,000 bringing the award to a total of \$170,000,000 over 84 months. The current Cooperative Agreement terminates on 31 December 2007.

The National Science Board (NSB) has adopted the position that “*...expiring awards are to be re-competed unless it is judged to be in the best interest of U.S. science and engineering not to do so*” (Appendix D to NSB 97-241). To address this issue, the NSF Division of Materials Research is convening the Advisory Panel on Future Support for High Magnetic Fields. The members of the panel are distinguished scientists from a wide range of scientific disciplines.

Prior to convening the panel, NSF asked the National Research Council to assess the current state of and future prospects for high-field science and technology in the United States. The resulting report of the NRC Committee on Opportunities in High Magnetic Field Science (COHMAG, appended) states:

“The United States should maintain a national laboratory that provides its scientific community access to magnets operating at the highest possible fields. The National High Magnetic Field Laboratory has successfully met this need for about a decade.”

COHMAG went on to identify a number of opportunities for consideration as the U.S. explores future investment in high magnetic field science, namely: enabling the study of neutron and x-ray scattering properties of materials in high magnetic fields; drawing all relevant communities into the development of new approaches to building the magnets and ancillary technologies needed for research; and developing novel technology and methodology for magnetic resonance and magnetic resonance imaging.

II. Charge to the Panel

The panel will determine whether the Laboratory has the potential to fulfill the vision presented in the COHMAG report, and will advise NSF as to a course of action that is in the best interests of U.S. science and engineering. Specifically, the panel is asked to consider the following options available to NSF:

- (1) *Renewal review of the NHMFL award, rather than recompetition*
- (2) *Holding an open competition for a magnet laboratory, which would include the possibility of building an entirely new magnet laboratory and phasing out support for the NHMFL*
- (3) *Holding an open competition for a distributed magnet laboratory, or*
- (4) *Holding a competition for additional sites to be added to the existing NHMFL.*

The panel will conduct site visits to NHMFL sites, as needed. The panel is also asked to suggest and prioritize other options that may be appropriate, and to make its recommendations in the context of high magnetic field facilities available internationally or elsewhere in the U.S.

III. Documentation

The following documents are appended. Other documents will be made available as requested by the Panel Chair.

1. NSF Director's Memorandum (March 2004) to the NSB requesting a two-year extension for the NHMFL.
2. Draft Report "Opportunities in High Magnetic Field Science" prepared by the National Research Council Committee on Opportunities in High Magnetic Field Science (COHMAG).
3. Recent Site Visit Reports from NSF reviews of the NHMFL (2002, 2003).

IV. Timeline for Panel and NHMFL Recompensation or Renewal Process

May 2004	NSB approved 2-year extension of NHMFL award
January 2005	COHMAG Draft Report published.
February 2005	DMR appoints "blue-ribbon" panel.
Spring 2005	March 16-18, 2005 Panel meets at NSF to plan activities April 20-23, 2005 (tentative) visits to NHMFL sites
30 June 2005	Panel submits report to NSF
Fall 2005	DMR informs NSB of planned course of action
(September 2005	Annual NSF Review of NHMFL)

If recompetition and /or expansion:

Winter 2005	DMR prepares Program Solicitation for competition.
January 2006	Program Solicitation released.
Summer 2006	Proposals due.
Fall 2006	Proposal evaluation, including possible site visits.
February 2007	Recommendation to NSB.
If an award is recommended:	
Spring 2007	NSF prepares new Cooperative Agreement.
January 1, 2008	Award effective.

If renewal:

Winter 2005	DMR advises FSU to submit renewal proposal.
Summer 2006	Proposal due.
Fall 2006	Proposal evaluation.
February 2007	Recommendation to NSB.
If an award is recommended:	
Spring 2007	NSF prepares new Cooperative Agreement.
January 1, 2008	Award effective.