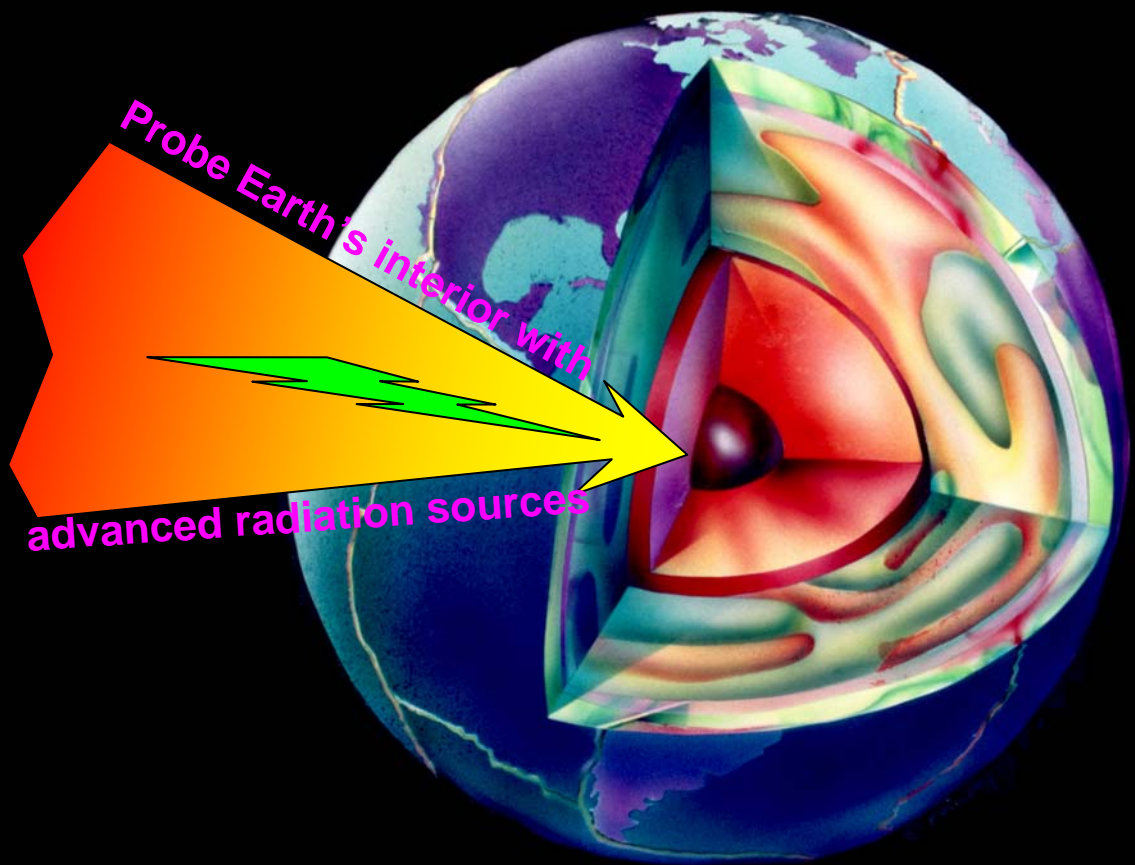




## Community Facilities and Infrastructure Development for High-Pressure Mineral Physics and Geosciences: COMPRES II



**Web Page Version of Proposal to the NSF submitted on behalf of the Executive Committee  
and the 50 Member Institutions of the COMPRES Consortium  
September 2006**

**About the Cover**

The cover for this proposal was designed by Jiuhua Chen, with contributions from Ann Lattimore and Michael Vaughan. The Earth cutaway diagram was created by Keelin Murphy for education and outreach programs of the Mineral Physics Institute at Stony Brook University and has been widely disseminated throughout the world.

The composite image illustrates the fundamental approach of members of the COMPRES community of mineral physicists: we use experimental facilities installed at the advanced radiation sources [synchrotron X-rays and neutron radiation] at the national laboratories of the Department of Energy to probe the Earth and further our understanding of its physical properties and dynamical processes.

**About this Proposal**

This proposal was produced by the COMPRES Executive Committee and COMPRES staff members on behalf of the 50 U. S. member institutions of the Consortium. The proposal consists of three parts: A. Project Overview; B. Program Reports; and C. Research Accomplishments. It has been developed over the past 14 months under planning procedures established by the Electorate in June 2005.

**Part A: Project Overview.**

Part A serves as a guide to the overall proposal. It is heavily annotated with references to the location(s) of more detailed information provided elsewhere in the proposal. We hope this facilitates reviewer access to the details of primary interest to each reader. In particular, Part A includes a summary of scientific highlights and technological advances in the first 4 years of COMPRES and the challenges for the next 5 years, an overview of the COMPRES Consortium, information on the member institutions and new faculty in mineral physics, management and organization, meetings and workshops, education and outreach activities, information technology and communications, and a list of publications.

This part concludes with a presentation of the Program Plan and budget request for the next five years. The Budget Plan includes our estimates of the costs to carry out the activities that are summarized in the Project Description and detailed in the Program Descriptions.

**Part B: Program Reports**

Part B consists of detailed progress reports on the Community Facilities operations and Infrastructure Development projects supported by COMPRES in the period 2002-2007 and proposed plans and detailed budgets for the period 2007-2012.

## **Part C: Research Accomplishments**

Part C is a compilation of one-page summaries (One-Pagers) which report highlights of the scientific and technological achievements of students, staff and faculty researchers using COMPRES-supported facilities, data produced from COMPRES programs, and the infrastructure development projects supported by COMPRES in its first four years from 2002-2006.

In addition to the three parts of the Project Description cited above, COMPRES submitted via FastLane the following Supplementary Documents:

1. The Bass Report (September 2004):

“Current and Future Research Directions in High-Pressure Mineral Physics

2. Poster based on Bass Report (April 2005)

3. EOS article (October 2005): “The Future of High-Pressure Mineral Physics”

4. Publications List—as referred to in Section A. 9 above.

5. Report of High Pressure Summit Meeting (November 2005)

6. Joint statement of relationship between COMPRES and GSECARS (January 2006) 7. List of U. S. member institutions and foreign affiliates of COMPRES

8. History of membership of COMPRES Standing Committees (2002-2006)

9. Statements of Policies and Procedures of the COMPRES Standing Committees

10. Data on beamline users and usage at COMPRES-supported beamlines

a. Beamline 12.2.2 at the ALS

b. Beamlines X17B3 and X17C at the NSLS

c. Beamline U2a at the NSLS

d. Beamline X17B2 at the NSLS

e. Beamlines for neutron studies

Via the links below, access to the pdf files for all the above components of this proposal can be obtained.

[Parts A: Project Overview and B: Program Reports](#)

[Part C: Research Accomplishments](#)

[Supplemental Documents](#)

**Addendum:**

This proposal was prepared by Ann Lattimore, Administrative Coordinator for COMPRES, with assistance from Samantha Lin and Michael Vaughan. The design and formatting of Part C was done by Glenn Richard. Following submission of the proposal to the NSF via FastLane, Donald Weidner oversaw the preparation of the printed copies of this proposal.