

September 7, 1999

Professor Geraldine L. Richmond
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Dear Geri:

I would like to add two activities to my charge to the Basic Energy Sciences Advisory Committee (BESAC) for the coming year. I would like BESAC to advise me on the current status of the two spallation sources operated by Basic Energy Sciences (BES) -- the Intense Pulsed Neutron Source (IPNS) at Argonne National Laboratory and the Manuel Lujan, Jr. Neutron Scattering Center (MLNSC) at the Los Alamos Neutron Science Center at Los Alamos National Laboratory. I also would like BESAC to provide advice on implementing a program of study in complex systems. I have provided an overview of each activity below. You should develop the detailed charges through discussions with the chair of the panel, subcommittee, or workshop and the Associate Director of BES.

The first activity is a review of the IPNS and the MLNSC. As you know, BES has begun the construction of the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory and is upgrading the MLNSC jointly with the Office of Defense Programs. When commissioned in 2005, the SNS will be the world's premier spallation source for neutron scattering research. However, during the interim and even past the time of the SNS commissioning, IPNS and MLNSC will be critical components of this country's capabilities in neutron scattering. Therefore, I would like BESAC to review the science and the user programs at IPNS and MLNSC. The group that you assemble for this task should, of course, contain experts in the science enabled by neutron scattering, but it should also contain members who will be able to address the effectiveness of the user program; user support; proposal review mechanisms; availability, dependability, and reliability; and the vision for the future of each facility. By analogy with the Birgeneau study of the synchrotron radiation light sources, the review should consider the full range of activities at IPNS and MLNSC regardless of whether they are supported by the BES program. I would like to have this report by July 2000. With the completion of this study and that already underway for the electron beam microcharacterization centers, BESAC will have reviewed all of the major BES facilities. These reviews represent an outstanding effort that is recognized throughout the scientific community. I want to thank and congratulate you for the thorough and professional way in which BESAC has conducted these reviews.

The second activity is an extension of your work on defining a research agenda and a roadmap for complex systems. The report *Complex Systems -- Research for the 21st Century* provides a compelling vision for a new research program in the physical and biophysical sciences. I would like BESAC to consider how such a program might be implemented. In particular, what resources (people, facilities, and equipment) are necessary to make significant progress in a reasonable amount of time? Should centers be established and, if so, what should be their characteristics? What would be the role of universities? of DOE laboratories? I would like to have your report at the time of the November 1999 BESAC meeting. Also, I would very much like to participate personally in this activity.

I appreciate BESAC's willingness to take on these important activities, and I look forward to meeting with you and learning of your progress throughout the coming year.

Sincerely,

Martha A. Krebs
Director
Office of Science