



UNIVERSITY OF OREGON

March 3, 1999

Dr. Martha Krebs  
Director, Office of Energy Research  
Department of Energy  
Washington, DC 20585

Dear Dr. Krebs,

As a result of recommendations of the Birgeneau Report on D.O.E. Synchrotron Light Sources and Science (November 1997), you charged the Basic Energy Sciences Advisory Committee (BESAC) with advising BES on the development and application of such sources in the future. To that end, Prof. Stephen Leone, a member of BESAC, assembled a panel of scientists to address issues related to the charge and to write a report summarizing their conclusions and recommendations. The Panel was comprised of scientists from diverse backgrounds, with representation from several communities with particular emphasis on the potential user community. Participants on this Panel included experts familiar with second and third generation synchrotron light sources, currently operating FELs and laboratory based laser systems. Input was solicited from user communities as well as staff of the current synchrotron light sources, FEL laboratories and laser development centers. The Panel met in January 1999 in Gaithersburg Maryland. The Workshop was highly productive, providing a forum for those in attendance to address some of the most important issues with regards to the scientific merit and technical feasibility of future novel coherent light sources.

As you know, the report of this Panel was submitted to BESAC at its meeting on February 24-25, 1999. After much thoughtful discussion, BESAC members unanimously accepted the "Novel Coherent Light Sources" report. I therefore am forwarding to you a copy of this report. I believe that you will find it to be a very impressive document, reflecting the depth of discussion and consideration that went into analyzing both the science that would be enabled by such novel sources, as well as the technological developments that need to be pursued. The report summarizes the findings and recommendations of the Panel, both for the development of future light sources that might become user facilities, as well as for development of smaller scale laser-based sources for innovative scientific experimentation and integration with large scale facilities. The report also provides recommendations for a series of steps to be undertaken as progress is made towards a light source of the future aimed at novel, hard X-ray

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science.

The BESAC members are very grateful for the dedicated effort of this Panel and particularly to Steve Leone as Chair of the Panel, and Eric Rohlfing from BES who assisted in an advisory capacity in organizing the Workshop. BESAC also wishes to recognize the helpful input and discussions of the liaisons from the National Laboratories who were involved in development of this report.

Sincerely,



Geraldine Richmond  
Chair, BESAC  
Professor of Chemistry  
Knight Professor of Liberal Arts  
& Sciences

cc. Pat Dehmer, Director, Basic Energy Sciences  
Prof. Stephen R. Leone, Chair, JILA and NIST, University of Colorado