The Frederick Seitz Materials Research Laboratory (FSMRL) supports interdisciplinary programs in materials research in cooperation with the faculty and students of many university departments. These include: Chemistry; Chemical and Biomolecular Engineering; Physics; Materials Science and Engineering; Electrical and Computer Engineering; Mechanical Science and Engineering; and Nuclear, Plasma, and Radiological Engineering. Several centers operating within the FSMRL provide points of interaction and support collaborations in research involving faculty and scientists from many institutions, including other universities and Department of Energy national laboratories.

Several major central facilities for materials research are operated by FSMRL. These include the Center for Microanalysis of Materials, a DOE User Center that has instrumentation for the nanoscale characterization of the structure and microchemistry of materials, and the EpiCenter for synthesis of a wide spectrum of single crystals, thin films, multilayers, and artificially tailored materials by MBE, CBE, and MOCVD. Other major units are the Computer Facility, Laser Laboratory, Microfabrication Facility, and High-Temperature Facility.

FSMRL also supports a large number of more specialized facilities. Two beamline sectors at the Advanced Photon Source, a synchrotron-based x-ray source located at Argonne National Laboratory, and two beamlines at the National Synchrotron Light Source at Brookhaven National Laboratory are operated by FSMRL.

Researchers at the University of Illinois, other universities, national laboratories, and industry are welcome to use FSMRL facilities.

Efforts at the FSMRL are focused on interdisciplinary research and include programs supported by the U.S. Department of Energy. Three major programs are metals and ceramics, solid-state sciences, and materials chemistry. In addition, a number of multi-investigator programs are sponsored by federal agencies. Within these programs, major research areas are biomaterials, superconductivity, electronic and transport properties of solids, catalysis, interfaces and properties of modulated structures, organic and polymeric materials, semiconductor physics, theory and computational methods for materials, radiation effects, synthesis and properties of ceramics, lattice defects and deformation and fracture of solids, and mesoscopic materials. These and other programs, which include computation, nanoscience, and engineering centers funded by the National Science Foundation and the Department of Defense, develop from faculty research initiatives within the structure of the FSMRL.

Faculty associated with the Frederick Seitz Materials Research Laboratory during the reporting period are listed below:

**Department of Chemical and Biomolecular Engineering**
- Deborah Leckband
- Richard Masel
- Charles Zukoski

**Department of Chemistry**
- Paul Bohn
- Dana Dlott
- Andrew Gewirth
- Gregory Girolami
- Yi Lu
- Todd Martinez
- Nancy Makri
- Jeffrey S. Moore
- Ralph Nuzzo
- Kenneth Suslick
- Andrzej Wieckowski

**Department of Civil and Environmental Engineering**
- Robert Haber

**Department of Computer Science**
Eric de Sturler

Department of Electrical and Computer Engineering
Stephen Bishop
Jean-Pierre Leburton
Joseph Lyding

Department of Industrial and Enterprise Systems Engineering
David E. Goldberg

Department of Geology
Jay Bass

Department of Materials Science and Engineering
John Abelson
Robert Averback
Pascal Bellon
Paul V. Braun
David Cahill
Gert Ehrlich
Steve Granick
Joseph Greene
Duane Johnson
Waltraud Kriven
Jennifer A. Lewis
Erik Luijten
David Payne
Ian Robertson
Angus Rockett
John A. Rogers
Kenneth Schweizer
John H. Weaver
Gerard Wong
Jian-Min Zuo

Frederick Seitz Materials Research Laboratory
Jeongnim Kim
Ivan Petrov
Jianguo Wen
Jeffrey O. White

Beckman Institute for Advanced Science and Technology
Glenn Fried

Department of Mechanical Science and Engineering
Alexey Bezryadin
Armand Beaudoin
Jimmy K. Hsia
Petros Sofronis

Department of Physics
David Ceperley
Tai-Chang Chiang
S. Lance Cooper
Karin Dahmen
James N. Eckstein
C. Peter Flynn
Paul Goldbart
Laura Greene
Alfred Hubler