Becoming a Successful Neutron User

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User Programs and Outreach

Neutrons for Powder Diffraction Workshop
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DOE and ORNL User Facilities Available for Collaborative Research

- State-of-the-art facilities
- Shared with the science community worldwide
- Offer technologies and instrumentation that are not available elsewhere
ORNL Home to 9 User Facilities

- Building Technologies Research and Integration Center (BTRIC)
- Carbon Fiber Technology Facility (CFTF)
- Center for Nanophase Materials Sciences (CNMS) and Shared Research Equipment (SHaRE) User Facility
- Center for Structural Molecular Biology (Bio-SANS)
- High Flux Isotope Reactor (HFIR)
- Manufacturing Demonstration Facility (MDF)
- National Transportation Research Center (NTRC)
- Oak Ridge Leadership Computing Facility (OLCF)
- Spallation Neutron Source (SNS)
Collaborate with HFIR and SNS

- Numerous opportunities
  - Become a user
  - Join SNS/HFIR User Group (SHUG)
  - Apply to The National School on Neutron and X-ray Scattering
  - Attend workshops and conferences
  - Promote ORISE internships, fellowships, and research participation programs [http://orise.orau.gov/sep/index.htm](http://orise.orau.gov/sep/index.htm)
  - Bring student groups to ORNL
  - Invite ORNL scientists to your campus or institution
Become a User

- Open access based on scientific merit

- Apply for beam time through competitive proposal process
  - Submit proposal using on-line system
    - 2-page statement of research plus sample description
    - 2 calls per year
  - External peer review required
  - Must be technically feasible and safe

- Free of charge if experimental results are intended for publication in the open literature

- Proprietary users are subject to full cost recovery
First-time Users Get Started with Our Assistance

• Contact an Instrument Scientist to discuss your research
  – Define the research problem
  – Define the material – composition, form, size, availability
  – Define the experimental conditions (temperature, pressure, magnetic field, etc)
  – Devise a measurement plan
  – Results – mode of presentation and audience
  – Expected timeline
Instrument Scientists Assist First-time and Returning Users

• Provide technical advice, guidance, and assistance
  – Instrument options
  – Sample and experiment preparation
  – Number of experiment days
  – Logistics (scheduling, transporting and storing samples)
  – Proposal preparation tips and assistance
  – Experiment team members
  – Data analysis
  – Publication considerations
Submit Proposal for Beam Time Consideration

• Allow time for review and revisions
• Meet the proposal call deadline
• Expect feedback ~7 weeks from the call close
• Be ready to schedule experiment if approved
  – Identify participating team members
  – Respond to ORNL access approval information
  – Facilitate execution of user agreements
  – Complete required training
  – Confirm sample availability and description and laboratory needs
• Consider reviewer comments if not approved and plan to resubmit this proposal or a new proposal in the next call
Proposal Tips

- Developed using feedback from our Scientific Review Committee
- Reviewed by User Groups
- Referenced and linked in the proposal Statement of Research template
Getting Started

• Access the User Portal to create a user account
  https://user.ornl.gov/

• Access IPTS (Integrated Proposal Tracking System)
  http://web.ornl.gov/sci/iums/ipts/

• Templates and guidance available within IPTS
User Program and Community
Unique User Statistics – FY 2013

Number of Unique Users

FY 2013

Institution Type

205  Academic  400
97   ORNL       126
48   Foreign Institutions  122
28   Other DOE Labs  57
13   Industry       8
4    Other Gov Labs  13
0    Other          0

395  Total  726

User Metrics – FY 2013 – Final
Total & Unique Users FY06-FY13

Number of Users

Fiscal Year

HFIR Total User
SNS Total User
HFIR Unique User
SNS Unique User

FY06 FY07 FY08 FY09 FY10 FY11 FY12 FY13

HFIR Total Users
0 24 165 469 796 1655
SNS Total Users
19 75 358 888 862 824

HFIR Unique Users
23 145 671 358 477 1015
SNS Unique Users
1 261 87 508 541 890

Fiscal Year

HFIR
SNS

Managed by UT-Battelle for the U.S. Department of Energy
Join SNS HFIR User Group (SHUG)

- Chartered 1998
- Open to individuals interested in using SNS and HFIR
- Provides input to management on user concerns
- Serves as a forum for keeping the user community informed
- Acts as an advocacy group for neutron scattering science
Learn More About SHUG

• Join on the web site (no cost)
  http://neutrons.ornl.gov/users/shug/

• Participate in annual meetings held in conjunction with the American Conference for Neutron Scattering (years ending in even number) and at ORNL (years ending in odd number)

• Contact Executive Committee Members – information on our website
  http://neutrons.ornl.gov/users/shug/committee.shtml

• Become an Executive Committee Member
National School on Neutron and X-ray Scattering

• June 14 - 28, 2014  65 graduate students participated
• Co-hosted by Argonne National Laboratory and ORNL
• Education on utilization of major neutron and x-ray facilities
• Includes lectures, tutorials, and hands-on experiments at ANL’s Advanced Photon Source and ORNL’s HFIR and SNS

• More information:  
  www.dep.anl.gov/nx
  neutrons.ornl.gov/nxs/
Join the Neutron Scattering Society of America (NSSA)

- Formed 1992
- Open to individuals interested in neutron scattering research in a wide spectrum of disciplines
- There is no membership cost
- More than 1000 members from 26 countries

http://neutronsccattering.org/
Neutron Sources

Europe
- Budapest Neutron Centre, AEKI, Budapest, Hungary
- Berlin Neutron Scattering Center, Helmholtz-Zentrum, Berlin, Germany
- Center for Fundamental and Applied Neutron Research (CFANR), Rez nr Prague, Czech Republic
- Frank Laboratory of Neutron Physics, Joint Institute of Nuclear Research, Dubna, Russia
- FRJ-2 Reactor, Forschungszentrum Jülich, Germany
- FRM-II Research Reactor, Garching, Germany
- GKSS Research Center, Geesthacht, Germany
- Institut Laue Langevin, Grenoble, France
- Interfacultair Reactor Instituut, Delft University of Technology, Netherlands
- ISIS Pulsed Neutron and Muon Facility, Rutherford-Appleton Laboratory, Oxfordshire, UK
- JEEP-II Reactor, IFE, Kjeller, Norway
- Laboratoire Léon Brillouin, Saclay, France
- Ljubljana TRIGA MARK II Research Reactor, J. Stefan Institute, Slovenia
- Risø National Laboratory, Denmark
- St. Petersburg Nuclear Physics Institute, Gatchina, Russia
- Studsvik Neutron Research Laboratory (NFL), Studsvik, Sweden
- Swiss Spallation Neutron Source (SINQ), Villigen Switzerland
- European Spallation Source (ESS)

Asia
- High-flux Advanced Neutron Application Reactor (HANARO), Korea
- Japan Atomic Energy Research Institute (JAERI), Tokai, Japan
- KENS Neutron Scattering Facility, KEK, Tsukuba, Japan
- Kyoto University Research Reactor Institute (KURRI), Kyoto, Japan
- Malaysian Institute for Nuclear Technology Research (MINT), Malaysia
- Japan Proton Accelerator Research Complex (J-PARC), Tokai, Japan
- China Advanced Research Reactor (CARR), Beijing, China
- Chinese Spallation Neutron Source (CSNS), Dongwan, Guangdong, China

America
- Centro Atomico Bariloche, Rio Negro, Argentina
- Canadian Neutron Beam Centre, Chalk River, Ontario, Canada
- High Flux Isotope Reactor (HFIR), Oak Ridge National Laboratory, Tennessee, USA
- Intense Pulsed Neutron Source (IPNS), Argonne National Laboratory, Illinois, USA
- Los Alamos Neutron Science Center (LANSCE), New Mexico, USA
- Low Energy Neutron Source (LENS), Indiana University Cyclotron Facility, USA
- McMaster Nuclear Reactor, Hamilton, Ontario, Canada
- MIT Nuclear Reactor Laboratory, Massachusetts, USA
- NIST Center for Neutron Research, Gaithersburg, Maryland, USA
- Peruvian Institute of Nuclear Energy (IPEN), Lima, Peru
- Spallation Neutron Source, Oak Ridge National Laboratory, Tennessee, USA
- University of Missouri Research Reactor, Columbia, Missouri, USA
- University of Illinois Triga Reactor, Urbana-Champaign, Illinois, USA

Oceania
- Bragg Institute, ANSTO, Australia

www.neutron.anl.gov/facilities.html
For More Information

• Visit our web site at neutrons.ornl.gov

• Contact the User Office. We will help you initiate your collaboration.
  – Laura Morris Edwards, edwardslm@ornl.gov or 865-574-2966
  – Neutron Sciences User Office, neutronusers@ornl.gov or 865-574-4600