



Final Report, 10/12/2012

DE-SC0007942

Participant Support for Speakers and Early-Career Scientists at the 2012 American Conference on Neutron Scattering (ACNS)

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ACNS Organizing Committee

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Bruce Gaulin, NSSA President
Stephan Rosenkranz, Program Co-chair
Nitash Balsara, Program Co-chair
Susan Krueger, Chair, Local Organizing Committee

NSSA Executive Committee

Bruce Gaulin, President
Julie Borchers, Vice President
John Tranquada, Treasurer
Chris Leighton, Secretary
Jaime Fernandez-Baca, Membership Sec.
Thomas Proffen, Communications Sec.

**FINAL REPORT: PARTICIPANT SUPPORT FOR SPEAKERS AND EARLY-CAREER SCIENTISTS AT THE
2012 AMERICAN CONFERENCE ON NEUTRON SCATTERING**

1. EXECUTIVE SUMMARY

The ACNS 2012 conference took place as scheduled from June 24th through 28th at the Georgetown University Conference Center, organized under the auspices of the Neutron Scattering Society of America (NSSA), in collaboration with the Materials Research Society (MRS). As discussed in detail below, we believe that, by all metrics, the conference was a resounding success. The meeting was focused around a vibrant and diverse program, highlighting both the depth and breadth of the remarkable scientific research being performed in the arena of neutron science in North America. In all, 378 registered attendees were attracted to this 6th conference in the series (an increase of well over 30 % in comparison to ACNS 2010), presenting 173 scientific talks and 138 posters. Of most direct relevance to this report the \$25,000 award provided by DOE (DE-SC0007942) enabled the conference organizers to waive registration fees for invited speakers (of which there were 38) and students, in addition to providing partial support for travel grants to 105 students and early-career researchers. The meeting served as a focal point for neutron-based research in North America, as a “super user meeting” of sorts, as a first-rate educational opportunity for young scientists, and as a tool both to strengthen the base of existing neutron users and to attract new users to US neutron facilities. Additional details on the activities and accomplishments are provided below.

2. ACCOMPLISHMENTS AND ACTIVITIES: AT-A-GLANCE

The ACNS 2012 meeting highlights included:

- 378 registered attendees
- Over 100 student and post-doc attendees
- 173 oral presentations
- 38 invited speakers
- 138 poster presentations
- 326 abstract submissions
- 276 unique contributions
- 7 paid exhibitors
- 2 tutorials
- 3 plenary sessions
- 4 prize acceptance talks
- A well-attended conference banquet featuring 2 speakers
- Daily poster sessions and vendor exhibits

3. CONFERENCE ORGANIZATION

The organization of the ACNS 2012 conference proceeded as anticipated, and as laid out in detail in the proposal for this award. The overall structure of the organization and program are shown in Figures 1 and 2, for reference.

4. ACCOMPLISHMENTS AND ACTIVITIES: DETAILED REPORT

The conference began with popular tutorial sessions on “*Advances in Time-of-flight Neutron Powder Diffraction*” and “*Novel Techniques for Small-Angle Neutron Scattering Techniques*”, chaired by Thomas Proffen (Oak Ridge National Lab) and Kathryn Krycka (NIST), respectively. In addition to the regular oral and poster sessions the conference also included a series of plenary sessions featuring plenary presentations, and prize acceptance presentations. Non-technical plenary talks were presented by Altaf Carim from OSTP, and by Yasuhiko Fujii on behalf of AONSA (The Asia-Oceania Neutron Scattering Association). The former focused on federal

science and technology policy and the 2013 budget, while the latter, a reciprocal invitation by NSSA from the earlier AONSA meeting, provided an overview of exciting neutron science developments in Asia and Oceania. Potential for collaboration with the North American scattering community was covered in some detail. Fascinating scientific plenary talks were provided by Tim Lodge of the University of Minnesota and Leon Balents of the University of California Santa Barbara, on block copolymer miscelles and quantum spin liquids, respectively.

Prize acceptance talks by the winners of the four main NSSA prizes made up the remainder of the plenary sessions. These were presented by Guangyong Xu, Robert Birgeneau, Suzanne te Velthuis (on behalf of Gian Felcher), and Claire White, the recipients of the Science, Shull, Sustained Research, and Student Prizes. The plenary sessions also enabled the NSSA to briefly recognize the members of the organization elected to Fellow in 2012 (Julie Borchers, Robert Cava, Charles Glinka, Eric Kaler, Roger Pynn, Steven Shapiro, Gregory Smith, Haskell Taub, and Samuel Werner).

The main scientific sessions took place over the course of a three-day program, featuring 32 oral sessions and 3 poster sessions (see Figure 3), with 173 talks and 138 posters. These sessions reflected the extraordinary breadth of neutron-based research in the US, covering topics as diverse as neutron instrumentation and methods, superconductivity, magnetism, mechanical properties of materials, biomembranes, zeolite materials, polymers, nanomaterials, energy materials, proteins, and fundamental neutron physics. In all, 378 registered attendees contributed to 276 unique contributions to the meeting, numbers that reflect substantial increases over 2010 levels. Of particular importance to this award, the NSSA/ACNS efforts

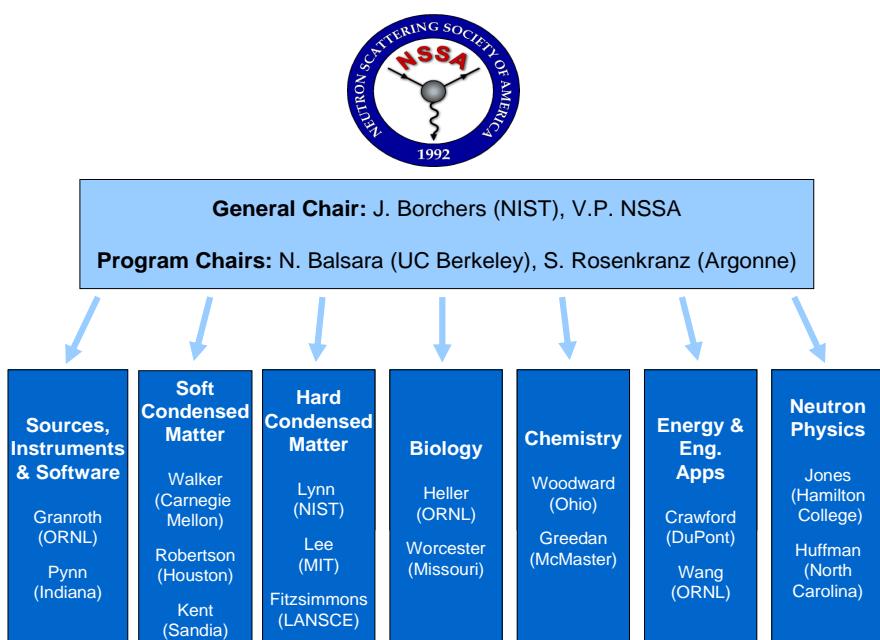


Fig. 1. Organizational structure of ACNS 2012

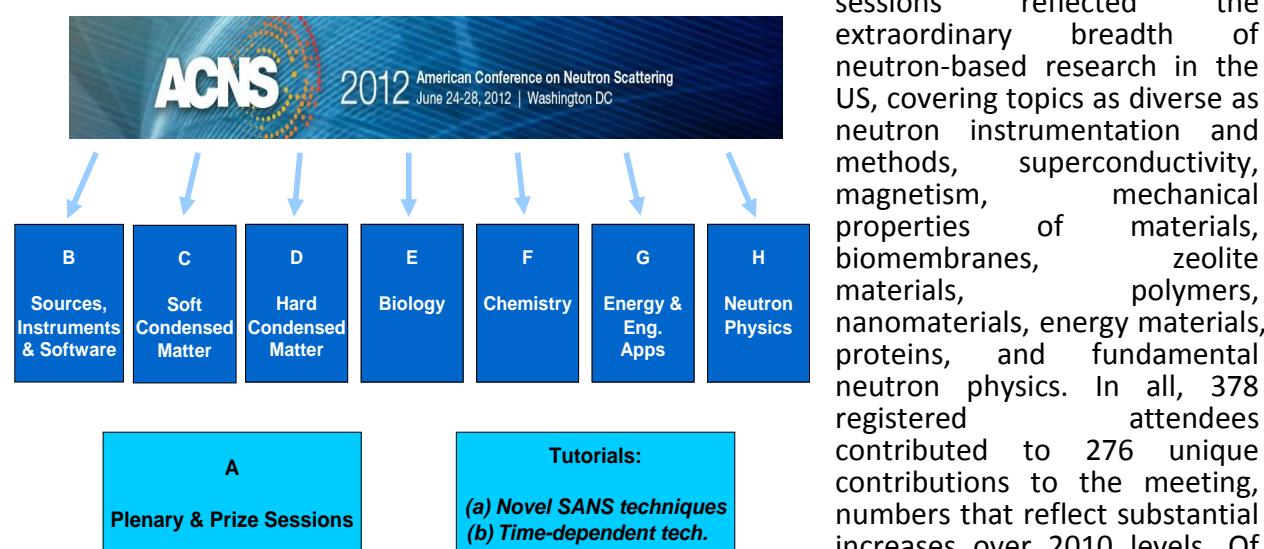


Fig. 2. Overall structure of the ACNS 2012 program

to increase participation of students and other early-career scientists was successful, leading to well over 100 student and post-doc attendees and 105 travel awards to offset attendance costs for young researchers.

The conference banquet also featured a pair of informative and entertaining presentations by Robert Shull (focusing on recollections of Cliff Shull's Nobel Prize winning work on neutron scattering) and Samuel Werner (recalling the founding of the NSSA 20 years earlier). Finally, the conference concluded on the final day with a tour of the newly completed guide-hall at the NIST Center for Neutron Research for all interested conference participants.

5. SUPPLEMENTARY INFORMATION

The front matter from the ACNS 2012 program book is attached here in lieu of a formal conference proceedings volume. We also attach a copy of the report written by C. Majkrzak and J. Borchers for the Taylor and Francis *Neutron News* publication, circulated to all subscribers in addition to all NSSA members.

6. CONCLUSION AND SUMMARY

In short, the DOE award of a \$25,000 grant played a significant role in establishing ACNS 2012 as a remarkably successful 6th in the series of ACNS conferences. The award enabled waiving of the registration fees for 28 invited speakers, in addition to supporting travel costs for over 100 early-career scientists. The ACNS series remains a well-attended and vibrant meeting serving multiple important functions for the US neutron science community.

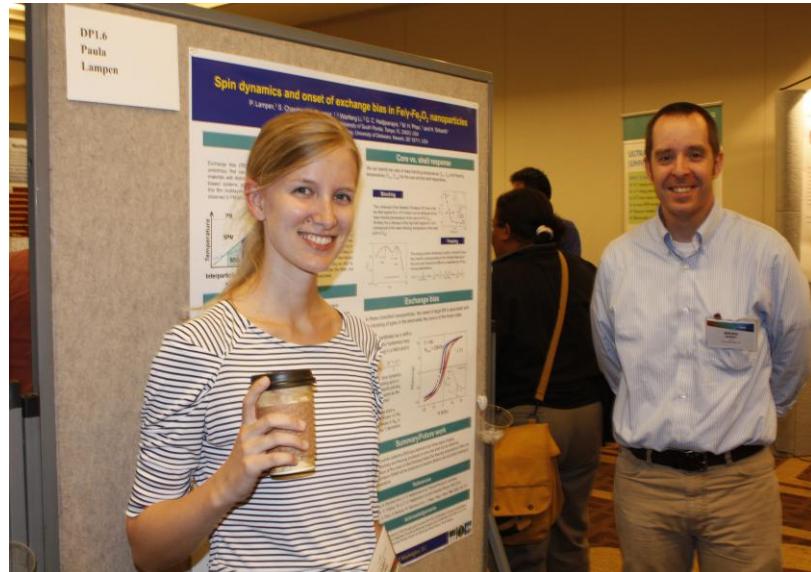


Fig. 3. Student attendee Paula Lampen of the University of South Florida discussing her presentation with Brian Kirby of NIST at an ACNS 2012 poster session.



PROGRAM & EXHIBIT GUIDE

June 24-28, 2012 | Georgetown University Hotel and Conference Center
Washington, D.C., USA

Welcome to the American Conference on Neutron Scattering (ACNS 2012) at Georgetown University in Washington, DC. The Conference is returning to the DC area for the first time since ACNS 2004. We are confident you'll find an excellent and engaging technical program and, of course, Washington, DC is a beautiful and exciting city to explore. The monuments and museums are only a short Metro ride away. Remember to take advantage of the impressive shops and restaurants on the Georgetown waterfront, which are within walking distance.

While the nation's budgetary situation has been of some concern, our infrastructure for neutron science remains in an extraordinary period of growth. New instrumentation continues to completion at the Spallation Neutron Source and HFIR at Oak Ridge. The NCNR at NIST has just completed the expansion of its guide hall and related facilities, and is once again open for business. We hope you will be able to take advantage of the tour of the expansion of the facilities at NIST that will be available at the end of ACNS 2012—we're sure you'll find it most impressive. Both LANSCE and the Canadian Neutron Beam Centre at Chalk River continue to operate reliably and well. We have every reason to believe that the upcoming couple of years will be very productive scientifically, as this new infrastructure moves to maturity.

Of course we are here to communicate, educate, and celebrate our advances in neutron scattering in North America, and this will keep us pretty busy for the full Conference. We are looking forward to an excellent program, with special thanks to the hard working Program Chairs, Nitash Balsara and Stephan Rosenkranz. As a result of the extraordinary efforts of the Local Organizing Committee, led by Susan Krueger, many students and young researchers have the opportunity to participate in this meeting at minimal expense to their home institute. We have also been very fortunate to have the expertise and extensive help from the staff at the Materials Research Society (MRS) who have assisted with many aspects of the organization.

At this Conference we will honor a number of people with NSSA prizes and as NSSA Fellows. More information can be found on pages 5-7. A great deal of work goes into administering these prizes, both by members of the community taking the time to put together nomination packages, and by the prize and fellows selection committees. We would like to take this opportunity to thank these people, and to encourage you to participate in this process by nominating someone for the next round of prizes and fellowships in the year prior to ACNS 2014.

Finally, we would like to thank our sponsors, without whom this meeting could not go ahead: the Neutron Sciences Directorate at Oak Ridge National Laboratory, the Lujan Neutron Scattering Center at the Los Alamos Neutron Science Center, the NIST Center for Neutron Research, the NRC Canadian Neutron Beam Centre and the US Department of Energy, Office of Basic Energy Sciences for generous financial support. We also are grateful for support from our industrial exhibitors; please stop by their booths and say hello.

Most importantly, we express our appreciation to all of you for contributing your time and energy to the meeting. On behalf of the Neutron Scattering Society of America, we wish you a very productive and most enjoyable ACNS 2012!

Bruce D. Gaulin NSSA President

Julie A. Borchers ACNS 2012 Conference Chair

TECHNICAL SESSIONS

- A: Plenary & Prize Sessions
- B: Sources, Instrumentation & Software
- C: Soft Condensed Matter
- D: Hard Condensed Matter
- E: Biology
- F: Chemistry
- G: Energy & Engineering Applications
- H: Neutron Physics



For electronic access to all Conference information, scan the QR code to the left or visit www.mrs.org/acns-2012.

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Conference Highlights

ABOUT ACNS 2012

Scientists from 16 countries will converge in Washington, DC this week for the **2012 American Conference on Neutron Scattering**. Sponsored by the **Neutron Scattering Society of America** and hosted by **NIST Center for Neutron Research**, the conference features over 325 oral and poster presentations. A strong program of plenary, invited and contributed talks and poster sessions cover topics in soft condensed matter, hard condensed matter, biology, chemistry, energy and engineering applications and neutron physics—confirming the great diversity of science that is enabled by neutron scattering.

TUTORIALS

Start the Conference off on Sunday afternoon with **two tutorials** free to conference attendees. Featured topics are *Advances in Time-of-Flight Powder Diffraction*, and *Novel Techniques for Small Angle Neutron Scattering*. For more details, see page 10.

WELCOME RECEPTION

Conference attendees are invited to the **Welcome Reception** on Sunday evening from 5:00 pm – 8:00 pm in Room C/F/H. **One Reception ticket is included in the Conference registration fee.**

POSTER SESSIONS/RECEPTIONS

Authors are available for in-depth discussions of their research during the **Poster Sessions and Receptions** held in Room C/F/H Monday and Wednesday from 6:00 pm – 7:30 pm and Tuesday from 3:30 pm – 5:30 pm. **These popular sessions are open to all registered Conference attendees.** Complimentary refreshments will be served.

COMPANION TICKET

Guests/companions accompanying you to the Conference may purchase Companion Tickets for \$100 per person. Tickets grant **admission to the Welcome and Poster Receptions**, and may be purchased at the Registration Desk.

EXHIBIT

Be sure to visit the **ACNS exhibitors** Sunday through Wednesday, in Room C/F/H. Learn more about the latest products and services in the rapidly evolving world of neutron scattering. See daily Schedule of Events for times.



NIST TOUR

The Conference culminates on Thursday with a **free tour** of the NIST facilities in Gaithersburg, Maryland. Advance registration was required. See Registration Desk for bus times and location.

EXPERIENCE THE NATION'S CAPITAL—WASHINGTON, DC

Georgetown, situated on the bluffs of Washington, DC, is rich in history and culture, making it an **ideal conference and vacation destination**. Known for its high-end shopping and dining and quaint row houses overlooking Waterfront Harbor, Georgetown is truly unlike any other city in the U.S. Take a walk back in time on the famous 18th century cobblestone streets. Visit the palatial gardens at Dumbarton Oaks, a mansion built in 1800 for Senator John Calhoun. Add in all the sites and attractions found in nearby Washington, DC, and you'll never have a dull moment!

SAVE THE DATE!

The **2013 International Conference on Neutron Scattering (ICNS 2013)** will be held in Edinburgh, UK, July 8-12, 2013. Mark your calendar today!

Special Presentations

MONDAY, JUNE 25 Room G

PLENARY

8:30 am – 9:00 am

Altaf H. Carim

Office of Science and Technology Policy,
Executive Office of the President

*Federal Science and Technology Policy, Initiatives,
and Budget for Fiscal Year 2013*



SCIENCE PRIZE WINNER

9:00 am – 9:30 am

Guangyong Xu

Brookhaven National Laboratory

*Probing Local Polar Structures in PZN-xPT and PMN-xPT Relaxor
Ferroelectrics using Neutron and X-Ray Scattering*



PLENARY

9:30 am – 10:00 am

Timothy Lodge

University of Minnesota

Dynamics of Chain Exchange in Block Copolymer Micelles



TUESDAY, JUNE 26 Room G

SHULL PRIZE WINNER

8:30 am – 9:15 am

Robert J. Birgeneau

University of California, Berkeley
and Lawrence Berkeley National Laboratory

*Structural, Magnetic and Superconducting
Transitions in the Iron Pnictides and Chalcogenides*



SUSTAINED RESEARCH PRIZE WINNER

9:30 am – 10:00 am

Gian Piero Felcher

Argonne National Laboratory

Probing Surfaces and Interfaces with Neutrons

This talk will be presented by Suzanne te Velthuis
on behalf of Felcher.



WEDNESDAY, JUNE 27 Room G

SOCIETY PRESIDENT LECTURE

8:35 am – 8:50 am

Yasuhiro Fujii

Comprehensive Research Organization for Science and Society

The Asia-Oceania Neutron Scattering Association (AONS)
Aiming at Global Cooperation



OUTSTANDING STUDENT RESEARCH PRIZE WINNER

9:00 am – 9:30 am

Claire White

Los Alamos National Laboratory

*Recent Progress in Elucidating Accurate Structural
Representations of Disordered Complex Materials*



PLENARY

9:30 am – 10:00 am

Leon Balents

University of California, Santa Barbara

Quantum Spin Liquids



NSSA EXECUTIVE COMMITTEE

President **Bruce D. Gaulin** McMaster University
Vice President **Julie Borchers** NIST Center for Neutron Research
Treasurer **John Tranquada** Brookhaven National Laboratory
Secretary **Chris Leighton** University of Minnesota
Membership Secretary **Jaime A. Fernandez-Baca** Oak Ridge National Laboratory
Communications Secretary **Thomas Proffen** Oak Ridge National Laboratory



ORGANIZING COMMITTEE

Conference Chair **Julie Borchers** NIST Center for Neutron Research
NSSA President **Bruce D. Gaulin** McMaster University

PROGRAM COMMITTEE

Co-Chair **Nitash Balsara** University of California, Berkeley
Co-Chair **Stephan Rosenkranz** Argonne National Laboratory

A: Plenary & Prize Sessions
Stephan Rosenkranz Argonne National Laboratory
Nitash Balsara University of California, Berkeley

B: Sources, Instrumentation & Software
Garrett Granroth Oak Ridge National Laboratory
Roger Pynn Indiana University

C: Soft Condensed Matter
Lynn Walker Carnegie Mellon University
Megan Robertson University of Houston
Mike Kent Sandia National Laboratories

D: Hard Condensed Matter
Jeff Lynn National Institute of Standards and Technology
Young Lee Massachusetts Institute of Technology
Michael Fitzsimmons Los Alamos National Laboratory

E: Biology
William Heller Oak Ridge National Laboratory
David Worcester University of Missouri, Columbia

F: Chemistry
Patrick Woodward Ohio State University
John Greedan McMaster University

G: Energy & Engineering Applications
Mike Crawford Du Pont
Xun-Li Wang Oak Ridge National Laboratory

H: Neutron Physics
Gordon Jones Hamilton College
Paul Huffman North Carolina State University

LOCAL ORGANIZING COMMITTEE

Chair **Susan Krueger** NIST Center for Neutron Research
Tanya Burke NIST Center for Neutron Research
Mary Ann Fitzgerald NIST Center for Neutron Research
Peter Gehring NIST Center for Neutron Research
Yamali Hernandez NIST Center for Neutron Research
Steve Kline NIST Center for Neutron Research
Kathryn Krycka NIST Center for Neutron Research
Faye Robinson Georgetown University
Sarah Stoll Georgetown University
Richard Weiss Georgetown University

The Neutron Scattering Society of America (NSSA) is an organization of persons who have an interest in neutron scattering research in a wide spectrum of disciplines from materials science to physics, chemistry to biochemistry. The NSSA was formed in 1992 to provide a forum for the discussion of scientific issues, major facilities and instrumentation needs for world-class neutron scattering research in North America. The main goal of the Society is to stimulate, promote and broaden the use of neutron scattering in science, engineering and technology.

Membership in the Society is available at no cost to individuals in academia, industry and government. Graduate students and recent Ph.D.s are especially encouraged to join. Presently the NSSA has more than 1200 members from 26 countries.

We encourage all conference attendees to stop by the NSSA booth during the ACNS conference, or visit www.neutronscattering.org.



The Neutron Scattering Society of America is pleased to announce the 2012 Fellows of the Society.

TUESDAY, JUNE 26

9:15 am | Room G

Julie Borchers NIST Center for Neutron Research

For insightful neutron investigations of magnetic materials, particularly interlayer exchange interactions phenomena in magnetic thin films and superlattices

Robert Cava Princeton University

For outstanding applications of neutron diffraction to the understanding of complex materials, and advocacy for the field particularly among young scientists

Charles Glinka University of Delaware and National Institute of Standards and Technology

For development and operation of world-class capabilities for small angle neutron scattering in America

Eric Kaler University of Minnesota

For enormous contributions to the science of soft matter and mentoring of young scientists in scattering science

Roger Pynn University of Indiana

For outstanding contributions to neutron scattering instrumentation and research, and for service to the U.S. neutron community

Steven Shapiro Brookhaven National Laboratory

For influential studies of phonons and phase transitions, as well as for contributions to the neutron scattering community

Gregory Smith Oak Ridge National Laboratory

For pioneering neutron scattering investigations of soft-condensed matter systems

Haskell Taub University of Missouri

For sustained studies of the structure, phase transitions, and dynamics of adsorbed films using neutron scattering techniques and for training of a future generation of neutron scattering scientists and engineers

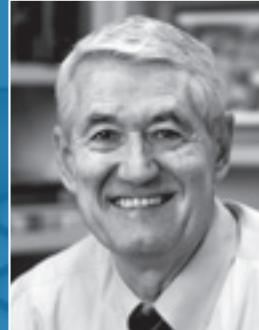
Samuel Werner National Institute of Standards and Technology

For elegant neutron experiments contributing to the understanding of quantum physics and for his sustained efforts to promote neutron science

Through the NSSA Fellowship Program, the NSSA recognizes members who have made significant contributions to the neutron scattering community in North America in one or more of the following areas: advances in knowledge through original research and publication; innovative contributions in the application of neutron scattering; contributions to the promotion or development of neutron scattering techniques; and service and participation in the activities of the NSSA or neutron community. Each year, election to Fellowship of the Neutron Scattering Society of America is limited to no more than one half of one percent of the membership. Additionally, recipients of the Clifford G. Shull Prize and Sustained Research Prize are automatically named Fellows of the Society. Election as NSSA Fellow recognize outstanding contributions to neutron scattering and the North American neutron scattering community.

The Neutron Scattering Society of America is pleased to announce the 2012 recipients of its four major prizes.

PRIZE CEREMONY | TUESDAY, JUNE 26
8:15 am | Room G



CLIFFORD G. SHULL PRIZE

Robert J. Birgeneau University of California, Berkeley
and Lawrence Berkeley National Laboratory
*for his seminal scientific contributions, tireless leadership, and devoted mentoring
in the field of neutron scattering*

The Clifford G. Shull Prize in Neutron Science recognizes outstanding research in neutron science and leadership promoting the North American neutron scattering community. The prize is named in honor of Clifford G. Shull, who received the Nobel Prize in 1994 for seminal developments in the field of neutron science.

ROBERT J. BIRGENEAU, chancellor and professor of physics at the University of California, Berkeley, has used neutron scattering as the primary experimental tool for a long series of seminal discoveries in the field of magnetism and correlated electrons. His research has tackled the leading scientific questions of the time, and his work has had lasting impact.

Birgeneau's celebrated studies of the physics of low-dimensional magnetism defined his early career in neutron scattering. Beginning in the late 1960s, in collaboration with Gen Shirane, Birgeneau studied the magnetic phase transition and associated spin correlations in the two-dimensional antiferromagnet K_2NiF_4 . They developed a technique for the efficient energy-integration of spin fluctuations in low-dimensional systems, without sacrificing q -resolution. The power of this technique is highlighted by its use 20 years later to elucidate the physics of the spin-1/2 square-lattice antiferromagnets La_2CuO_4 and $Sr_2Cu_2OCl_2$. This latter work, which was also performed by Birgeneau, represents landmark contributions of the neutron scattering technique to central questions in condensed matter physics.

Birgeneau has also impacted the field of high-temperature superconductivity. In a research program that began in the late 1980s and continues to this day, he has revealed how magnetism evolves across the cuprate phase diagram (from the lightly doped to the overdoped compositions). In early work, he and his collaborators found antiferromagnetic fluctuations persist in doped La_2CuO_4 based compounds, and spin fluctuations become incommensurate at superconducting doping levels. Birgeneau's research also includes pioneering discoveries related to magnetic excitations in spin chains, the magnetic structure and dynamics in percolative and random field systems, and spin-Peierls physics.

An equally important legacy has ensued from his academic role as a mentor and teacher. Birgeneau has trained numerous young scientists, who now populate the ranks of the neutron scattering community. His enthusiasm for science and high standards for performing research are often noted by those he mentored as having an indelible influence on their careers. Birgeneau has also been a tireless and articulate advocate of the neutron scattering technique in public lectures and articles. He has served on scientific advisory panels, been an active voice in various capacities regarding the science enabled by the DOE scattering facilities, and chaired an important DOE-BESAC panel regarding the future of neutron reactor facilities in this country.

Birgeneau received his Ph.D. from Yale University in 1966. He was a scientist at Bell Laboratories from 1968-1975 and became a professor of physics at MIT in 1975. He served as the head of the Department of Physics from 1988-1991 and then dean of the School of Science at MIT from 1991-2000. From 2000-2004, he was president and professor of physics at the University of Toronto. He has received numerous awards, including the APS Oliver E. Buckley Award (1987), the IUPAP Magnetism Award (1997), and the APS J. E. Lilienfeld Award (2000). Birgeneau has over 425 papers and almost 25,000 total citations to date.

**Presentation: Structural, Magnetic and Superconducting Transitions in the Iron
Pnictides and Chalcogenides**
Tuesday | 8:30 am – 9:15 am



SCIENCE PRIZE

Guangyong Xu Brookhaven National Laboratory

for his work on relaxor ferroelectrics that have provided new insights into the role of polar nano-regions in determining the extreme electromechanical properties of these materials

The Science Prize recognizes a major scientific accomplishment or important scientific contribution within the last 5 years using neutron scattering techniques.

GUANGYONG XU has achieved profound experimental insights in relaxor ferroelectrics through neutron and synchrotron x-ray diffraction. By combining these techniques, he discovered that single crystalline relaxors such as $PbZn_{1/3}Nb_{2/3}O_3$ (PZN) and $PbMg_{1/3}Nb_{2/3}O_3$ (PMN) form a rhombohedral surface layer with a thickness up to 10 μm . Within the cubic bulk, he obtained clear evidence through coherent diffuse scattering of polar nano-regions that respond by changing shape to an applied electric field. He also found, through inelastic neutron scattering, that the field dependent configuration of polar nano-regions strongly affects phonon propagation through the bulk.

Relaxor ferroelectrics play an increasingly important technological role—PZN with 4.5% $PbTiO_3$, for example, displaying the largest known piezo-electric

coefficient. Xu's work links these properties to unique field dependent atomic scale bulk and surface structure. His experiments have poised this field of research and development for a breakthrough in understanding and designing improved relaxor ferroelectrics.

Xu received his Ph.D. in 1999 from Johns Hopkins University and joined Brookhaven National Laboratory in 2002. Xu is currently a tenured physicist at Brookhaven National Laboratory.

**Presentation: Probing Local Polar Structures in PZN-xPT and PMN-xPT
Relaxor Ferroelectrics using Neutron and X-Ray Scattering**
Monday | 9:00 am – 9:30 am



SUSTAINED RESEARCH PRIZE

Gian Piero Felcher Argonne National Laboratory

for pioneering the development of neutron reflectometry and demonstrating its application to magnetic and polymer film systems

The Sustained Research Prize recognizes a sustained contribution to a scientific subfield, or subfields, using neutron scattering techniques, or a sustained contribution to the development of neutron scattering techniques.

programs on surfaces, interfaces and multilayers. As a result, neutron reflectometry was quickly recognized as one of the most powerful tools for characterizing surface phenomena or buried interfaces, and reflectometers were put into operation at all major neutron scattering facilities throughout the world.

Felcher has continued this record of creativity throughout his career, most recently achieving the first successful demonstration of the use of neutron spin-echo in grazing incidence geometry as a way of measuring surface inhomogeneity with enhanced resolution and flux. Felcher received his *dottore in fisica* from the University of Milano, Italy in 1958. He worked at Argonne National Laboratory for more than 40 years, ultimately as senior physicist in the Materials Science Division before his retirement in 2007.

Presentation: Probing Surfaces and Interfaces with Neutrons
Tuesday | 9:30 am – 10:00 am

This talk will be presented by Suzanne te Velthuis on behalf of Felcher.



PRIZE FOR OUTSTANDING STUDENT RESEARCH

Claire White Los Alamos National Laboratory

for pioneering a new methodology to elucidate accurate structural representations of complex materials by combining neutron diffraction and computational chemistry

Founded in 2011, this inaugural award honors outstanding accomplishments in the general area of neutron scattering by graduate or undergraduate students.

Ordinary Portland cement-based (OPC) concrete is the most-used building material worldwide and is the second-most-used resource, after water. However, concrete is the third highest CO_2 emitter, accounting for 5-8% of all man-made emissions. Therefore, there is massive scope for technological development of alternative concretes. **CLAIRE WHITE** pioneered a new methodology to elucidate accurate structural representations of complex materials by combining neutron diffraction and computational chemistry. She used the disordered aluminosilicate material, metakaolin, an alternative cement precursor, as the case study, with the methodology revealing the existence of III-coordinated aluminum, which has never before been shown to exist in this material. This research exemplified the power of combining local structural data (i.e., neutron pair distribution function analysis) with first-principles calculations for amorphous materials, especially when used in an iterative manner to maintain thermodynamic feasibility and agreement with experimental data.

White has also been heavily involved in technique development with respect to incoherent scattering and neutron pair distribution function analysis.

For hydrogen and other incoherent scattering elements, the neutron pair distribution function technique is greatly affected, reducing the ability to obtain high quality PDFs. During her graduate studies, White participated extensively in the development of new tools capable of subtracting out the incoherent scattering component of total scattering data.

White graduated from The University of Melbourne in 2010, and is currently a Director's Postdoctoral Fellow at Los Alamos National Laboratory, with a joint appointment involving the Lujan Neutron Scattering Center and the Theoretical Division. Her research involves combining theoretical and experimental techniques to advance the understanding of low CO_2 cements (geopolymers) and associated materials. She is active in the area of technique development and is constructing novel methodologies combining experimental data and simulations.

Presentation: Recent Progress in Elucidating Accurate Structural Representations of Disordered Complex Materials
Wednesday | 9:00 am – 9:30 am

DAILY SCHEDULE OF EVENTS

SUNDAY, JUNE 24

Registration.....	12:00 pm – 8:00 pm
South Gallery Foyer	
Tutorial: Advances in Time-of-Flight Powder Diffraction.....	1:00 pm – 5:00 pm
Room D	
Tutorial: Novel Techniques for Small Angle Neutron Scattering	1:00 pm – 5:00 pm
Room E	
Welcome Reception	5:00 pm – 8:00 pm
Room C/F/H	
Exhibit.....	5:00 pm – 8:00 pm
Room C/F/H	

CONFERENCE BANQUET

TUESDAY, JUNE 26 | 7:00 pm – 9:00 pm | ROOM G

\$75.00 per person
Tickets available at Registration Desk



Robert D. Shull
National Institute of Standards and Technology

A Memoir of Clifford G. Shull,
Neutron Scattering at the Beginning



Sam Werner
National Institute of Standards and Technology

The Founding of NASA 20 Years Ago

MONDAY, JUNE 25

Registration.....	7:30 am – 7:30 pm
South Gallery Foyer	
A1: Plenary/Prize Lectures.....	8:20 am – 10:00 am
Room G	
Break	10:00 am – 10:30 am
Room C/F/H	
Exhibit.....	10:00 am – 10:30 am
Room C/F/H	
B1: Instrumentation for Large Structures and Long Time Scales.....	10:30 am – 12:15 pm
Room A/B	
D1: High-Tc Spin Dynamics and Superconducting Resonance.....	10:30 am – 12:15 pm
Room G	
E1: Biomembranes.....	10:30 am – 12:00 pm
Room D/E	
G1: Mechanical Behavior of Structural Materials.....	10:30 am – 12:15 pm
Room 5/6	
Lunch (Not provided by Conference)	12:15 pm – 1:45 pm
Poster Authors Set-up	1:00 pm – 6:00 pm
Room C/F/H	
B2: Instrumentation - New Techniques.....	1:45 pm – 3:30 pm
Room G	
C1: Polyelectrolytes and Water Soluble Polymers	1:45 pm – 3:30 pm
Room D/E	
F1: Absorption and Separation, MOFs and Zeolites	1:45 pm – 3:30 pm
Room A/B	
G2: Energy Conversion Materials.....	1:45 pm – 3:30 pm
Room 5/6	
Break	3:30 pm – 4:00 pm
Room C/F/H	
Exhibit.....	3:30 pm – 4:00 pm
Room C/F/H	
C2: Lipids and Membranes.....	4:00 pm – 5:30 pm
Room D/E	
D2: Magnetism of Nanostructured Materials	4:00 pm – 5:30 pm
Room G	
F2: Local Structure	4:00 pm – 5:30 pm
Room A/B	
H1: Neutron Physics I	4:00 pm – 5:15 pm
Room 5/6	
Poster Session - General Viewing.....	6:00 pm – 7:30 pm
Room C/F/H	
Exhibit.....	6:00 pm – 7:30 pm
Room C/F/H	

TUESDAY, JUNE 26

Registration.....	7:30 am – 7:30 pm
South Gallery Foyer	
A2: Prize/Plenary Lectures; Award Presentations and Introduction of Fellows.....	8:15 am – 10:00 am
Room G	
Break	10:00 am – 10:30 am
Room C/F/H	
Exhibit.....	10:00 am – 10:30 am
Room C/F/H	
B3: Sources and Detectors.....	10:30 am – 12:15 pm
Room A/B	
C3: Confined and Porous Systems.....	10:30 am – 12:15 pm
Room D/E	
D3: Superconductivity	10:30 am – 12:15 pm
Room G	
G3: High Temperature and Radiation Resistant Materials	10:30 am – 12:15 pm
Room 5/6	
Lunch (Not provided by Conference)	12:15 pm – 1:45 pm
Poster Authors Set-up	1:00 pm – 3:30 pm
Room C/F/H	
D4: Control of Bulk Properties Through Materials Engineering	1:45 pm – 3:00 pm
Room G	
E2: Protein Structure and Associations	1:45 pm – 3:00 pm
Room D/E	
F3: Neutron Spectroscopic Studies of New Materials.....	1:45 pm – 3:00 pm
Room A/B	
H2: Neutron Physics II	1:45 pm – 3:00 pm
Room 5/6	
Break	3:00 pm – 3:30 pm
Room C/F/H	
Exhibit.....	3:00 pm – 5:30 pm
Room C/F/H	
Poster Session - General Viewing.....	3:30 pm – 5:30 pm
Room C/F/H	
Conference Banquet.....	7:00 pm – 9:00 pm
Room G	

WEDNESDAY, JUNE 27

Registration.....	7:30 am – 7:30 pm
South Gallery Foyer	
A3: Prize/Plenary Lectures and Outstanding Student Poster Announcement....	8:30 am – 10:00 am
Room G	
Break	10:00 am – 10:30 am
Room C/F/H	
Exhibit.....	10:00 am – 10:30 am
Room C/F/H	
B4: Optics and Polarization	10:30 am – 12:15 pm
Room A/B	
C4: Complex Fluids and Gels	10:30 am – 12:15 pm
Room D/E	
D5: Multiferroics and Complex Oxides	10:30 am – 12:15 pm
Room G	
F4: Structural Studies.....	10:30 am – 12:15 pm
Room 5/6	
Lunch (Not provided by Conference)	12:15 pm – 1:45 pm
Poster Authors Set-up	1:00 pm – 6:00 pm
Room C/F/H	
C5: Polymers and Films	1:45 pm – 3:30 pm
Room D/E	
D6: Frustrated and Novel Magnetism.....	1:45 pm – 3:30 pm
Room G	
E3: Stability and Dynamics	1:45 pm – 3:30 pm
Room 5/6	
G4: Energy Storage Materials.....	1:45 pm – 3:15 pm
Room A/B	
Break	3:30 pm – 4:00 pm
Room C/F/H	
Exhibit.....	3:30 pm – 4:00 pm
Room C/F/H	
B5: Software for Neutron Data Analysis.....	4:00 pm – 5:30 pm
Room A/B	
C6: Particle-Containing and Clustered Systems ..	4:00 pm – 5:30 pm
Room D/E	
D7: Lattice Dynamics	4:00 pm – 5:30 pm
Room G	
E4: General Topics.....	4:00 pm – 5:30 pm
Room 5/6	
Poster Session - General Viewing.....	6:00 pm – 7:30 pm
Room C/F/H	
Exhibit.....	6:00 pm – 7:30 pm
Room C/F/H	

THURSDAY, JUNE 28

Registration.....	7:30 am – 10:00 am
South Gallery Foyer	
ADVANCED SIGN-UP WAS REQUIRED	
• Continental Breakfast at 8:00 am for Tour Participants ONLY	
• Buses will leave from Georgetown University at 9:00 am	
• Tour is from 10:00 am – 12:00 pm	
• Buses will return to Georgetown University at approx. 1:30 pm	
<i>Transportation Assistance from NIST to Airport will be available up request.</i>	

TUTORIALS



SUNDAY, JUNE 24

Advances in Time-of-Flight Powder Diffraction | Room D

This tutorial will give a practical overview of the current state of the art in time-of-flight neutron powder diffraction. Topics include an introduction to powder diffraction and the pair distribution function analysis. These two introductory talks are followed by practical examples employing stroboscopic measurement as well as parametric studies.

Chair **Ashfia Huq** Oak Ridge National Laboratory

1:00 pm – 1:45 pm	Introduction to TOF Powder Diffraction Ashfia Huq Oak Ridge National Laboratory
1:45 pm – 2:30 pm	Introduction to Pair Distribution Function analysis Emil Bozin Brookhaven National Laboratory
2:30 pm – 3:00 pm	Break
3:00 pm – 3:45 pm	TOF Event data and stroboscopic diffraction measurements Ke An Oak Ridge National Laboratory
3:45 pm – 4:30 pm	Parametric neutron powder diffraction Speaker to be Determined
4:30 pm	Open discussion

Novel Techniques for Small Angle Neutron Scattering | Room E

This tutorial will highlight some of the novel, cutting edge advances in small-angle neutron scattering (SANS). It will feature four topics: rheological SANS under shear (RHEO-SANS), time-resolved SANS (TISANE), polarization analyzed SANS (PASANS) for magnetic systems, and SASSIE, an adaptable computational suite for solving complex structures. These lectures will include a lively mixture of experimental highlights, theory, supporting software, and practical hands-on information. The lecturers are expert users, and attendees are encouraged to engage them. There will be time set aside for lengthy discussion during the coffee break and the final open discussion period.

Chair **Kathryn Krycka** NIST Center for Neutron Research

1:00 pm – 1:05 pm	Brief Introduction Kathryn Krycka NIST Center for Neutron Research
1:05 pm – 1:50 pm	Rheo-SANS: Rheology and Shear Cells Designed for SANS Norman Wagner University of Delaware
1:50 pm – 2:35 pm	TISANE: Time-Resolved Small Angle Neutron Scattering Roland Gähler Institut Laue-Langevin
2:35 pm – 3:00 pm	Break
3:00 pm – 3:45 pm	Polarization Analysis: Resolving Structural and Magnetic Scattering Mike Fitzsimmons Los Alamos National Laboratory
3:45 pm – 4:30 pm	SASSIE: Computation for Complex Structures Hailiang Zhang NIST Center for Neutron Research Nick Clark NIST Center for Neutron Research
4:30 pm	Open discussion

ORAL PRESENTATIONS AT-A-GLANCE

MONDAY, JUNE 25

Room A/B	Room D/E	Room G	Room 5/6
		Welcome 8:20 am – 8:30 am A1.1 Altaf Carim* 8:30 am – 9:00 am A1.2 Guangyong Xu* 9:00 am – 9:30 am A1.3 Timothy Lodge* 9:30 am – 10:00 am	
		BREAK 10:00 am – 10:30 am B: SOURCES, INSTRUMENTATION & SOFTWARE	»»»
		B1.1 Rana Ashkar* 10:30 am – 11:00 am B1.2 Michael Ohl 11:00 am – 11:15 am B1.3 Dazhi Liu 11:15 am – 11:30 am B1.4 Christopher Stanley 11:30 am – 11:45 am B1.5 Daniel Yen 11:45 am – 12:00 pm B1.6 Daniel Hussey 12:00 pm – 12:15 pm	»»»
		E1.1 Thad Harroun* 10:30 am – 11:00 am E1.2 Bulent Akgun 11:00 am – 11:15 am E1.3 Hirsh Nanda 11:15 am – 11:30 am E1.4 Mohan Boggara 11:30 am – 11:45 am E1.5 Clare Armstrong 11:45 am – 12:00 pm	D: HARD CONDENSED MATTER
		D1.1 Pengcheng Dai* 10:30 am – 11:00 am D1.2 John-Paul Castellan 11:00 am – 11:15 am D1.3 Mark Lumsden 11:15 am – 11:30 am D1.4 John Tranquada 11:30 am – 11:45 am D1.5 Michael Norman* 11:45 am – 12:15 pm	G: ENERGY & ENGINEERING APPLICATIONS
			G1.1 Sean Agnew* 10:30 am – 11:00 am G1.2 Mohamed Shamma 11:00 am – 11:15 am G1.3 Adam Creuziger 11:15 am – 11:30 am G1.4 Peter Liaw 11:30 am – 11:45 am G1.5 Nina Lane 11:45 am – 12:00 pm G1.6 Alexandru Stoica 12:00 pm – 12:15 pm
		LUNCH 12:15 pm – 1:45 pm F: CHEMISTRY	»»»
		F1.1 Raul Lobo* 1:45 pm – 2:15 pm F1.2 A. Ramirez-Cuesta 2:15 pm – 2:30 pm F1.3 Wendy Queen 2:30 pm – 2:45 pm F1.4 Matthew Hudson 2:45 pm – 3:00 pm F1.5 Rachel Pollock 3:00 pm – 3:15 pm F1.6 Andrew Allen 3:15 pm – 3:30 pm	»»»
		C1.1 Jann Maranas* 1:45 pm – 2:15 pm C1.2 Bin Wu 2:15 pm – 2:30 pm C1.3 Changwoo Do 2:30 pm – 2:45 pm C1.4 Lilin He 2:45 pm – 3:00 pm C1.5 Kunlun Hong 3:00 pm – 3:15 pm C1.6 Zheng Yi 3:15 pm – 3:30 pm	B: SOURCES, INSTRUMENTATION & SOFTWARE
		B2.1 Mark Bird* 1:45 pm – 2:15 pm B2.2 Oleksandr Prokhnenco 2:15 pm – 2:30 pm B2.3 Ke An* 2:30 pm – 3:00 pm B2.4 Jose Rodriguez-Rivera 3:00 pm – 3:15 pm B2.5 Barry Winn 3:15 pm – 3:30 pm	G: ENERGY & ENGINEERING APPLICATIONS
			G2.1 Jihui Yang* 1:45 pm – 2:15 pm G2.2 David Bucknall 2:15 pm – 2:30 pm G2.3 Steven DeCaluwe 2:30 pm – 2:45 pm G2.4 Adam Moule 2:45 pm – 3:00 pm G2.5 Brent Fultz* 3:00 pm – 3:30 pm
		BREAK 3:30 pm – 4:00 pm F: CHEMISTRY	»»»
		F2.1 Andrew Wills* 4:00 pm – 4:30 pm F2.2 Ram Seshadri* 4:30 pm – 5:00 pm F2.3 Margit Fabian 5:00 pm – 5:15 pm F2.4 Antonio Faraone 5:15 pm – 5:30 pm	»»»
		C2.1 Ramanan Krishnamoorti* 4:00 pm – 4:30 pm C2.2 Kevin Diehn 4:30 pm – 4:45 pm C2.3 Andrea Woodka 4:45 pm – 5:00 pm C2.4 Mu-Ping Nieh 5:00 pm – 5:15 pm C2.5 Takumi Hawa 5:15 pm – 5:30 pm	D: HARD CONDENSED MATTER
		D2.1 Chris Leighton* 4:00 pm – 4:30 pm D2.2 Alexander Grutter 4:30 pm – 4:45 pm D2.3 Yaohua Liu 4:45 pm – 5:00 pm D2.4 Kai Liu* 5:00 pm – 5:30 pm	H: NEUTRON PHYSICS
			H1.1 Chen-Yu Liu* 4:00 pm – 4:30 pm H1.2 Ruediger Pickert* 4:30 pm – 5:00 pm H1.3 Christopher Lavelle 5:00 pm – 5:15 pm
		POSTER SESSION ROOM C/F/H 6:00 pm – 7:30 pm »»»	»»»

* Invited

ORAL PRESENTATIONS AT-A-GLANCE

TUESDAY, JUNE 26

Room A/B	Room D/E	Room G	Room 5/6
		Award Presentations 8:15 am – 8:30 am A2.1 Robert Birgeneau* 8:30 am – 9:15 am Introduction for NSSA Fellows 9:15 am – 9:30 am A2.2 Suzanne te Velthuis* 9:30 am – 10:00 am	
BREAK 10:00 am – 10:30 am	»»»	»»»	
B: SOURCES, INSTRUMENTATION & SOFTWARE	C: SOFT CONDENSED MATTER	D: HARD CONDENSED MATTER	G: ENERGY & ENGINEERING APPLICATIONS
B3.1 David Baxter* 10:30 am - 11:00 am	C3.1 Sow-Hsin Chen* 10:30 am - 11:00 am	D3.1 Daniel Pratt* 10:30 am - 11:00 am	G3.1 Zhili Feng* 10:30 am - 11:00 am
B3.2 Thomas Huegle 11:00 am - 11:15 am	C3.2 Souleymane Diallo 11:00 am - 11:15 am	D3.2 Stephen Wilson 11:00 am - 11:15 am	G3.2 Peng Wang 11:00 am - 11:15 am
B3.3 Nicholas Maliszewskyj* 11:15 am - 11:45 am	C3.3 Timothy Prisk 11:15 am - 11:30 am	D3.3 Efrain Rodriguez 11:15 am - 11:30 am	G3.3 Ken Littrell 11:15 am - 11:30 am
B3.4 Jacob McComb 11:45 am - 12:00 pm	C3.4 Brad Lokitz 11:30 am - 11:45 am	D3.4 Andreas Kreyssig 11:30 am - 11:45 pm	G3.4 Bjorn Clausen 11:30 am - 11:45 am
B3.5 Lowell Crow 12:00 pm - 12:15 pm	C3.5 Saurabh Singh 11:45 am - 12:00 pm	D3.5 Dmitry Reznik 11:45 am - 12:00 pm	G3.5 Sophie Voisin 11:45 am - 12:00 pm
	C3.6 Narayan Das 12:00 pm - 12:15 pm	D3.6 Morten Eskildsen 12:00 pm - 12:15 pm	G3.6 Qian Li 12:00 pm - 12:15 pm
LUNCH 12:15 pm – 1:45 pm	»»»	»»»	
F: CHEMISTRY	E: BIOLOGY	D: HARD CONDENSED MATTER	H: NEUTRON PHYSICS
F3.1 Emil Bozin* 1:45 pm - 2:15 pm	E2.1 Isidro (Dan) Zarraga* 1:45 pm - 2:15 pm	D4.1 Yumi Ijiri* 1:45 pm - 2:15 pm	H2.1 Michael Huber* 1:45 pm - 2:15 pm
F3.2 Alexander Kilesnikov 2:15 pm - 2:30 pm	E2.2 Frank Heinrich 2:15 pm - 2:30 pm	D4.2 Matthew Stone 2:15 pm - 2:30 pm	H2.2 Joachim Nsofini 2:15 pm - 2:30 pm
F3.3 Andrew Hicks 2:30 pm - 2:45 pm	E2.3 Eric Yearley 2:30 pm - 2:45 pm	D4.3 Hye Kang 2:30 pm - 2:45 pm	H2.3 Ronald Cappelletti 2:30 pm - 2:45 pm
F3.4 Nina Verdal 2:45 pm - 3:00 pm	E2.4 Kushol Gupta 2:45 pm - 3:00 pm	D4.4 Qingzhen Huang 2:45 pm - 3:00 pm	H2.4 Neveen Shilayan 2:45 pm - 3:00 pm
BREAK 3:00 pm – 3:30 pm	»»»	»»»	
POSTER SESSION ROOM C/F/H 3:30 pm – 5:30 pm	»»»	»»»	

* Invited

Mark Your Calendar For ICNS

WEDNESDAY, JUNE 27

Room A/B	Room D/E	Room G	Room 5/6
		Introductions 8:30 am – 8:35 am A3.1 Yasuhiko Fujii* 8:35 am – 8:50 am Outstanding Student Poster Prize Announcement 8:50 am – 9:00 am A3.2 Claire White* 9:00 am – 9:30 am A3.3 Leon Balents* 9:30 am – 10:00 am	
BREAK 10:00 am – 10:30 am	»»»	»»»	
B: SOURCES, INSTRUMENTATION & SOFTWARE	C: SOFT CONDENSED MATTER	D: HARD CONDENSED MATTER	F: CHEMISTRY
B4.1 Wangchun Chen* 10:30 am – 11:00 am	C4.1 Danilo Pozzo* 10:30 am – 11:00 am	D5.1 William Ratcliff* 10:30 am – 11:00 am	F4.1 Mario Bieringer* 10:30 am – 11:00 am
B4.2 Xin Tong 11:00 am – 11:15 am	C4.2 Norman Wagner 11:00 am – 11:15 am	D5.2 Jaehong Jeong 11:00 am – 11:15 am	F4.2 Jing-Tai Zhao 11:00 am – 11:15 am
B4.3 Qiang Ye 11:15 am – 11:30 am	C4.3 Andrew Jackson 11:15 am – 11:30 am	D5.3 Jae-Ho Chung 11:15 am – 11:30 am	F4.3 Ashfia Huq* 11:15 am – 11:45 am
B4.4 William Hamilton 11:30 am – 11:45 am	C4.4 Hyuntaek Oh 11:30 am – 11:45 am	D5.4 Eduardo Granado 11:30 am – 11:45 am	F4.4 Jason Simmons 11:45 am – 12:00 pm
B4.5 Todd Sherline 11:45 am – 12:00 pm	C4.5 Monika Hartl 11:45 am – 12:00 pm	D5.5 Stuart Calder 11:45 am – 12:00 pm	F4.5 Peng Wang 12:00 pm – 12:15 pm
B4.6 Jack Robertson 12:00 pm – 12:15 pm	C4.6 Hideki Seto 12:00 pm – 12:15 pm	D5.6 Joel Helton 12:00 pm – 12:15 pm	
LUNCH 12:15 pm – 1:45 pm	»»»	»»»	
G: ENERGY & ENGINEERING APPLICATIONS	C: SOFT CONDENSED MATTER	D: HARD CONDENSED MATTER	E: BIOLOGY
G4.1 John Tse* 1:45 pm – 2:15 pm	C5.1 Xiaohua Zhang 1:45 pm – 2:00 pm	D6.1 Seung-Hun Lee* 1:45 pm – 2:15 pm	E3.1 Christopher Roberts* 1:45 pm – 2:15 pm
G4.2 Abhijit Pramanick 2:15 pm – 2:30 pm	C5.2 Ralf Koehler 2:00 pm – 2:15 pm	D6.2 Yang Zhao 2:15 pm – 2:30 pm	E3.2 Liang Hong 2:15 pm – 2:30 pm
G4.3 Michael Lerche 2:30 pm – 2:45 pm	C5.3 Manish Kulkarni 2:15 pm – 2:30 pm	D6.3 Katharina Fritsch 2:30 pm – 2:45 pm	E3.3 Haskell Taub 2:30 pm – 2:45 pm
G4.4 Howard Wang 2:45 pm – 3:00 pm	C5.4 Chris Garvey 2:30 pm – 2:45 pm	D6.4 Travis Williams 2:45 pm – 3:00 pm	E3.4 Sung-Min Choi 2:45 pm – 3:00 pm
G4.5 Joseph Dura 3:00 pm – 3:15 pm	C5.5 Madhu Sudan Tyagi 2:45 pm – 3:00 pm	D6.5 Marc Janoschek* 3:00 pm – 3:30 pm	E3.5 Melissa Sharp 3:00 pm – 3:15 pm
	C5.6 Hyungjin Lee 3:00 pm – 3:15 pm		E3.6 Yinglong Ma 3:15 pm – 3:30 pm
BREAK 3:30 pm – 4:00 pm	»»»	»»»	
B: SOURCES, INSTRUMENTATION & SOFTWARE	C: SOFT CONDENSED MATTER	D: HARD CONDENSED MATTER	E: BIOLOGY
B5.1 Brian Maranville 4:00 pm – 4:15 pm	C6.1 Vivek Prabhu* 4:00 pm – 4:30 pm	D7.1 Douglas Abernathy 4:00 pm – 4:15 pm	E4.1 Susan Krueger 4:00 pm – 4:15 pm
B5.2 Konstantin Berlin 4:15 pm – 4:30 pm	C6.2 Yun Liu 4:30 pm – 4:45 pm	D7.2 Olivier Delaire 4:15 pm – 4:30 pm	E4.2 Tatiana Perevozchikova 4:15 pm – 4:30 pm
B5.3 Mathieu Doucet* 4:30 pm – 5:00 pm	C6.3 Adam Washington 4:45 pm – 5:00 pm	D7.3 Chen Li 4:30 pm – 4:45 pm	E4.3 Sylvia Junghans 4:30 pm – 4:45 pm
B5.4 Raymond Osborn 5:00 pm – 5:15 pm	C6.4 Matthew Barrett 5:00 pm – 5:15 pm	D7.4 Adam Aczel 4:45 pm – 5:00 pm	E4.4 Sildharth Shenoy 4:45 pm – 5:00 pm
B5.5 Andrei Savici 5:15 pm – 5:30 pm	C6.5 Saurabh Singh 5:15 pm – 5:30 pm	D7.5 Louis Santodato 5:00 pm – 5:15 pm	E4.5 Mathias Loesche 5:00 pm – 5:15 pm
		D7.6 Henry Glyde 5:15 pm – 5:30 pm	E4.6 Xiang-qiang Chu 5:15 pm – 5:30 pm
POSTER SESSION ROOM C/F/H 6:00 pm – 7:30 pm	»»»	»»»	

POSTER PRESENTATIONS AT-A-GLANCE

MONDAY, JUNE 25

PAPER #	PRESENTER
BP1.1	Thomas Huegle
BP1.2	Melissa Sharp
BP1.3	Michael Fleenor
BP1.4	Sangjin Lee
BP1.5	Alexander Deyhim
BP1.6	John Barker
BP1.7	Carrie Y. Gao
CP1.1	Jung Min Kim
CP1.2	Kathleen Weigandt
CP1.3	Nestor Valadez-Perez
CP1.4	Paul Godfrin
CP1.5	Rana Ashkar
CP1.6	Sameer Sathaye
CP1.7	Marilia do Rego barros
CP1.8	Andrea Woodka
DP1.1	Liam O'Brien
DP1.2	Brian Kirby
DP1.3	Gary Mankey
DP1.4	Igor Zaliznyak
DP1.5	Jian Yu
DP1.6	Paula Lampen
DP1.7	Kathryn Krycka
DP1.8	Liza Hashim
DP1.9	Steven Spurgeon
DP1.10	Binod Rai
DP1.11	Daniel Pajerowski
DP1.12	Huibao Cao
DP1.13	Jooseop Lee
DP1.14	Zhijun Xu
EP1.1	Chris Garvey
EP1.2	William Heller
EP1.3	Ella Mihailescu
EP1.4	Laura Toppozini
EP1.5	John Katsaras
EP1.6	Jianjun Pan
EP1.7	David Worcester
FP1.1	Brian Frederick
FP1.2	Minzhong Xu
FP1.3	Monika Hartl
FP1.4	Ebru Kizilay
GP1.1	Liwei Huang
GP1.2	Changwoo Do
GP1.3	Lalitha Ganapatibhotla
GP1.4	Jim Browning
GP1.5	Jose Banuelos
GP1.6	Amal Al-wahish

Poster Authors Set-up

Monday 1:00 pm - 6:00 pm
 Tuesday 1:00 pm - 3:30 pm
 Wednesday 1:00 pm - 6:00 pm

General Viewing | Room CHF

Monday 6:00 pm - 7:30 pm
 Tuesday 3:30 pm - 5:30 pm
 Wednesday 6:00 pm - 7:30 pm

TUESDAY, JUNE 26

PAPER #	PRESENTER
BP2.1	Haitham Abdel Majid
BP2.2	Sangjin Lee
BP2.3	Lisa DeBeer-Schmitt
BP2.4	Peng Wang
BP2.5	Richard Weber
BP2.6	Rebecca Mills
BP2.7	Wangchun Chen
BP2.8	Daniel Brown
BP2.9	Chenyang Jiang
BP2.10	Melissa Sharp
CP2.1	Wei-Shan Chiang
CP2.2	Christopher Bertrand
CP2.3	Dongcui Li
CP2.4	Gregory Newbloom
CP2.5	Jeffrey Richards
CP2.6	Jiahua Zhu
CP2.7	Jungjy Ryu
DP2.1	Yaohua Liu
DP2.2	Gary Mankey
DP2.3	Brian Maranville
DP2.4	Gregory Tucker
DP2.5	Sachith Dissanayake
DP2.6	Kemp Plumb
DP2.7	Stephen Daunheimer
DP2.8	Ryan Morrow
DP2.9	Binod Rai
DP2.10	G. Granroth
DP2.11	Jerod Wagman
DP2.12	Robert McQueeney
DP2.13	Jagat Lamsal
DP2.14	Timothy Prisk
EP2.1	Zvi Kelman
EP2.2	Amit Vaish
EP2.3	Joon Ho Roh
EP2.4	Derya Vural
EP2.5	Ann S. Junghans
EP2.6	Sylvia Junghans
FP2.1	Nathan Hould
FP2.2	Nathaniel Bass
FP2.3	Harshita Kumari
GP2.1	Wei Chen
GP2.2	Brett Guralnick
GP2.3	Hao Shen
GP2.4	Wenluan Zhang
GP2.5	David Jacobson
HP1.1	Alexander Deyhim
HP1.2	David Worcester

WEDNESDAY, JUNE 27

PAPER #	PRESENTER
BP3.1	X. Yang
BP3.2	Harley Skorpenske
BP3.3	Alexander Deyhim
BP3.4	Jinkui Zhao
BP3.5	Chun-Ming Wu
BP3.6	Wangchun Chen
BP3.7	Alexandre Ivanov
BP3.8	Richard Azuah
BP3.9	Ken Littrell
CP3.1	Peter Holden
CP3.2	Aldona Rajewska
CP3.3	Andrew Miskowiec
CP3.4	Andrea Woodka
CP3.5	Zheng Yi
CP3.6	Saurabh Singh
CP3.7	Bulent Akgun
CP3.8	Antonio Faraone
CP3.9	Michihiro Nagao
CP3.10	Jong Keum
DP3.1	Chenyang Shi
DP3.2	Hillary Smith
DP3.3	Ioanna Bakaimi
DP3.4	Gregory MacDougall
DP3.5	Despina Louca
DP3.6	Andrey Podlesnyak
DP3.7	Chris Stock
DP3.8	Valery Kiryukhin
DP3.9	Kazuki Iida
DP3.10	Eugene Iolin
DP3.11	Victor Fanelli
DP3.12	Michael Loewenhaupt
DP3.13	Deepak Singh
DP3.14	Peng Wang
DP3.15	Henry Glyde
EP3.1	Vitalii Silin
EP3.2	Shih-Chun Huang
EP3.3	William O'Dell
EP3.4	Sylvia Junghans
GP3.1	Dong Ma
GP3.2	Peter Liaw
GP3.3	Lilin He
GP3.4	Xun-Li Wang

- A: Plenary & Prize Sessions
- B: Sources, Instrumentation & Software
- C: Soft Condensed Matter
- D: Hard Condensed Matter
- E: Biology
- F: Chemistry
- G: Energy & Engineering Applications
- H: Neutron Physics

SPECIAL THANKS

This conference has been funded, in part, by the generous contributions from these organizations:



Lujan Neutron Scattering Center
Los Alamos Neutron Science Center
lansce.lanl.gov/lujan



National Research Council Canada
Canadian Neutron Beam Centre
www.nrc-cnrc.gc.ca/cnbc



The Neutron Scattering Society of America
www.neutronscattering.org



NIST Center for Neutron Research
www.ncnr.nist.gov



Oak Ridge National Laboratory
Neutron Sciences Directorate
neutrons.ornl.gov



U.S. Department of Energy
Office of Basic Energy Sciences
science.energy.gov/bes

ACNS EXHIBITOR PROFILES

WELCOME TO THE ACNS 2012 EXHIBIT

Georgetown University Hotel and Conference Center
Room C/F/H

EXHIBIT HOURS

Sunday	5:00 pm	–	8:00 pm
Monday	10:00 am	–	10:30 am
	3:30 pm	–	4:00 pm
	6:00 pm	–	7:30 pm
Tuesday	10:00 am	–	10:30 am
	3:00 pm	–	5:30 pm
Wednesday	10:00 am	–	10:30 am
	3:30 pm	–	4:00 pm
	6:00 pm	–	7:30 pm

The ACNS 2012 Exhibit, held in conjunction with the conference, will feature displays from all sectors of the neutron science community. Convenient to the technical sessions and posters, attendees are encouraged to visit the exhibit displays to learn more about the latest products and services related to the neutron scattering field.



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www.ncnr.nist.gov

The NCNR operates 25 instrument stations providing thermal and cold neutrons to the largest community of neutron users in North America. Approximately 700 proposals were peer-reviewed in 2009 and 350 papers were published based on completed experiments. Research ranges from physical and life sciences to fundamental neutron physics, earth science and engineering. Cold neutron instruments are especially featured at the facility which is undergoing an expansion to a new guide hall that will host five new state-of-the-art instrument stations.

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The National Research Council—Canadian Neutron Beam Centre (NRC-CNBC) enables researchers to use neutron beams as tools for world-class materials research, which provides new understandings of materials and improves products for businesses. Each year, over 200 scientists, engineers, and students from universities, government labs and industry participate in research that depends on access to its six neutron beamlines.

LUJAN CENTER
Los Alamos National Laboratory

LUJAN NEUTRON SCATTERING CENTER
Los Alamos Neutron Science Center (LANSCE)
Los Alamos National Laboratory
lansce.lanl.gov/lujan

Key Products: Neutron Scattering

The Lujan Center is a national user facility that offers access to eleven neutron scattering instruments and three nuclear physics instruments. Neutrons are produced by spallation using an 800 MeV proton beam at the LANSCE facility. Extreme environment capabilities include temperature, pressure, magnetic field, corrosion and stress. Focus areas include diffraction, total scattering, reflectometry, magnetism, polarized and small-angle scattering. 20Hz operation and liquid hydrogen moderators make the facility well suited for long wavelength applications. LANSCE hosts three other user facilities focused on nuclear physics, proton radiography and isotope production. Classified and proprietary research can be accommodated upon request. Funding for Lujan is provided by the DOE Office of Basic Energy Sciences.



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Key Products: Research Facility; Fundamental Research

Oak Ridge National Laboratory, managed by UT-Battelle, LLC, for the U.S. Department of Energy, is home to two of the world's most advanced neutron scattering facilities. The Spallation Neutron Source is an accelerator-based pulsed spallation neutron source and is the most powerful pulsed spallation neutron source in the world. The High Flux Isotope Reactor provides one of the highest steady-state neutron fluxes of any of the world's research reactors.



NEUTRON SCATTERING SOCIETY OF AMERICA
www.neutronsattering.org

Key Products: American Conference of Neutron Scattering; Clifford G. Shull Prize in Neutron Science; Sustained Research and Science Prizes; Prize for Outstanding Student Research; Student Travel Awards

The Neutron Scattering Society of America (NSSA) was established in 1992 to provide a forum to discuss scientific issues, major facilities and instrumentation needed for world-class research in neutron scattering. The main goal of the Society is to stimulate, promote and broaden the use of neutron scattering in science, engineering and technology. The NSSA brings together and identifies the needs of the neutron scattering community of the U.S.A. and carries out educational activities.



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Key Products: Books; Journals; eBooks

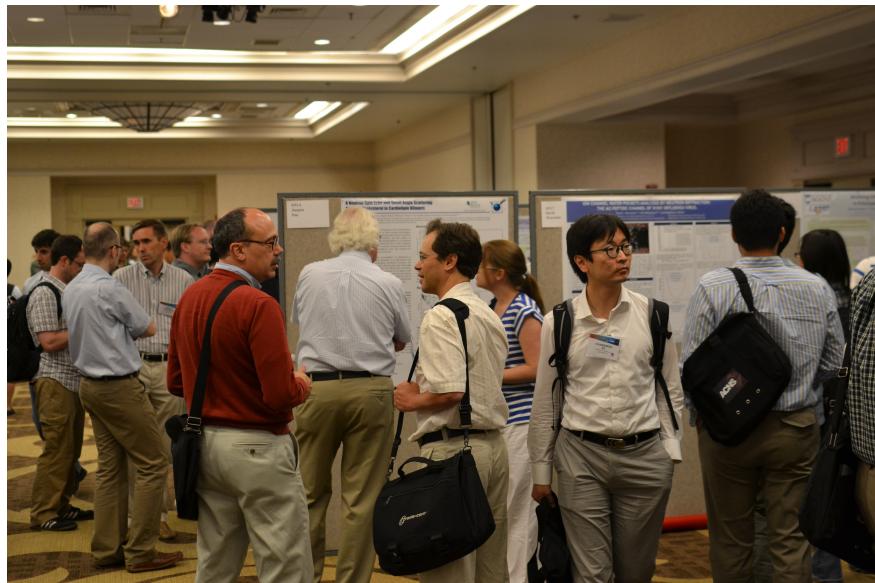
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Invited Speaker Index

Name	Paper #	Session Title	Date	Time	Room
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Ashkar, Rana	*B1.1	B1: Instrumentation for Large Structures and Long Time Scales	Monday, June 25	10:30 am	Room A/B
Baxter, David	*B3.1	B3: Sources and Detectors	Tuesday, June 26	10:30 am	Room A/B
Bieringer, Mario	*F4.1	F4: Structural Studies	Wednesday, June 27	10:30 am	Room 5/6
Bird, Mark	*B2.1	B2: Instrumentation - New Techniques	Monday, June 25	1:45 pm	Room G
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Leighton, Chris	*D2.1	D2: Magnetism of Nanostructured Materials	Monday, June 25	4:00 pm	Room G
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Liu, Kai	*D2.4	D2: Magnetism of Nanostructured Materials	Monday, June 25	5:00 pm	Room G
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Maliszewskyj, Nicholas	*B3.3	B3: Sources and Detectors	Tuesday, June 26	11:15 am	Room A/B
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Prabhu, Vivek	*C6.1	C6: Particle-Containing and Clustered Systems	Wednesday, June 27	4:00 pm	Room D/E
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Yang, Jihui	*G2.1	G2: Energy Conversion Materials	Monday, June 25	1:45 pm	Room 5/6
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2012 American Conference on Neutron Scattering (ACNS 2012)

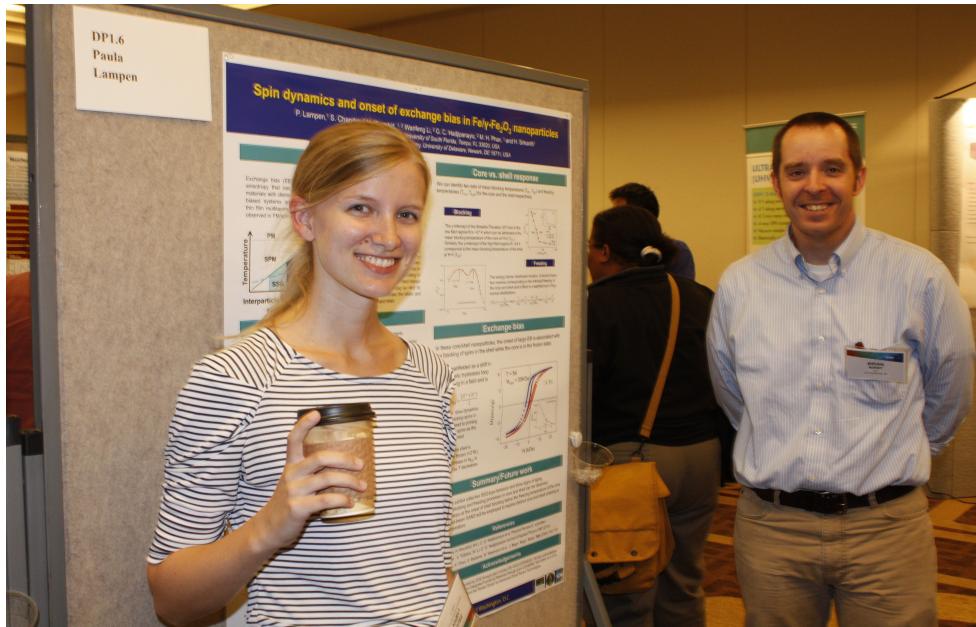
The Conference was held June 24-28 at Georgetown University, along the scenic Potomac River and near the historic Georgetown section of Washington, District of Columbia, close to downtown and adjacent to the famous Chesapeake and Ohio Canal (a National Historic Park). This 6th conference in the series was sponsored by the Neutron Scattering Society of America (NSSA) and hosted by the Center for Neutron Research at the National Institute of Standards and Technology (NIST). By all measures, the meeting can be judged an overwhelming success with more than 380 enthusiastic people in attendance and a notably interesting set of lectures and poster sessions (more than 325 in total) which covered the principle topics of biology, hard and soft condensed matter, chemistry, neutron physics, energy and engineering applications, as well as sources, instrumentation and software. The diversity of scientific disciplines covered attests to the current breadth of applications of neutron scattering studies. (Conference program details, including abstracts of presentations, can be found on line at www.mrs.org/acns-2012 and www.neutronscattering.org.) The success of the Conference was due in large part to the efforts of the organizing committee (chair Julie Borchers and NSSA president Bruce Gaulin), the program committee (co-chairs Nitash Balsara and Stephan Rosenkranz), the local organizing committee (chair Susan Krueger), Materials Research Society conference coordinators (Jackie Mancheas, Debbie Kriss, and Donna Waterson), and also the generous support of: the Neutron Sciences Directorate at Oak Ridge National Laboratory, the Lujan Neutron Scattering Center at Los Alamos National Laboratory, the NIST Center for Neutron Research (NCNR), the National Research Council Canadian Neutron Beam Centre, and the United States Department of Energy, Office of Basic Energy Sciences. Exhibitors from national facilities as well as commercial manufacturers of relevant equipment were represented at the ACNS and provided information about services and products. The commercial vendors included Advanced Design Consulting, Blake Industries, Cryogenic Limited, General Electric Energy (Reuter Stokes), Janis Research Company, the Kurt J. Lesker Company, and Springer publishers.



All three poster sessions at the Conference were very heavily attended and a lot of interesting discussion was generated. It is remarkable that neutron scattering methods continue to find an expanding number of applications in a broad range of scientific areas.

On the Sunday preceding the main program of the Conference, a couple of tutorial sessions were organized. The first dealt with advances in time-of-flight powder diffraction and was chaired by Thomas Proffen of Oak Ridge National Laboratory. The second tutorial focused on novel techniques for small angle neutron scattering and was chaired by Kathryn Krycka of the NIST Center for Neutron Research.

In addition to the scientific program, several awards were presented at the Conference by the NSSA. Guangyong Xu of Brookhaven National Laboratory, Robert J. Birgeneau of the University of California, Berkeley, and Gian Piero Felcher of Argonne National Laboratory, were presented with the Science Prize, Shull Prize, and Sustained Research Prize, respectively. Claire White of Los Alamos National Laboratory received the Outstanding Student Research Prize. More details on these awards are given in an article in Volume 23, Number 2 (April, May, June 2012) of *Neutron News*. In dedicated sessions, the prize recipients presented lectures about the work for which they had been recognized, except for Gian Felcher who was not able to attend. In his place, Suzanne te Velthuis made a presentation on his behalf. Robert Birgeneau spoke about structural, magnetic, and superconducting transitions in the iron pnictides and chalcogenides while Guangyong Xu described studies probing local polar structures in relaxor ferroelectrics using both neutron and x-ray scattering methods. Suzanne te Velthuis summarized some of Gian Felcher's groundbreaking work on probing surfaces and interfaces with neutron reflectometry. Finally, Claire White talked about recent progress in elucidating accurate structural representations of disordered complex materials. Besides the aforementioned prizes, nine new Fellows of the NSSA were announced, in acknowledgment of their outstanding contributions to neutron scattering and the North American neutron scattering community -- Julie Borchers, Robert Cava, Charles Glinka, Eric Kaler, Roger Pynn, Steven Shapiro, Gregory Smith, Haskell Taub, and Samuel Werner. Congratulations to all of them for this well-deserved recognition.



Paula Lampen of the University of South Florida and Brian Kirby of NIST in the midst of discussing magnetic nanoparticles at one of the popular poster sessions.

At the Conference Banquet on Tuesday evening, two interesting and inspiring talks were presented. The first was given by Sam Werner about the founding of the NSSA, 20 years earlier. He conveyed a sense of the history of the organization, how its membership has increased substantially over the years, and the degree to which it has evolved to become an important proponent of neutron scattering research within the larger scientific community. The second talk was given by Robert Shull, a distinguished senior scientist and Fellow at NIST, who also happens to be the son of Nobel Laureate and pioneering neutron scatterer, the late Clifford Shull. Robert Shull recounted some of the extraordinary science that his father performed with neutrons which ultimately led to, along with the contributions of other early pioneers in the field such as Bert Brockhouse, the establishment of neutron scattering research as an indispensable microscopic probe of condensed matter. Along the way, Dr. Shull also gave us a glimpse of the personal life and times of this great scientist and founding father of our field.

It should also be mentioned that in addition to the well-received invited and contributed oral presentations, as well as the three immensely popular poster sessions, several excellent plenary talks were given. Timothy Lodge of the University of Minnesota spoke about the dynamics of chain exchange in block copolymer micelles and Leon Balents of the University of California, Santa Barbara, talked about quantum spin liquids. From the US Office of Science and Technology Policy, Altaf Carim gave a presentation on federal science and technology policy and initiatives together with the anticipated budget for fiscal year 2013. To complete the series of lectures, Yasuhiko Fujii, gave a very informative talk on the activities of the Asia-Oceania Neutron Scattering Association (AONSA) in his role as president of the organization.



Conference participants join staff members for a tour of the NCNR facility. In the photo above, one of the 5 new guides being installed in the expanded experimental hall is shown in the foreground.

In addition to the Plenary Sessions each morning, the conference featured four parallel oral sessions during each day followed by a poster session in the late afternoon or evening. The oral sessions were well attended and included invited and contributed talks focused on topics such as “Complex Fluids and Gels” and “Lattice Dynamics.” Invited talks ranged from an overview of the structural properties of organogels using rheology, dielectric spectroscopy and Small Angle Neutron Scattering by Danilo Pozzo (University of Washington) to a description of the high-field scattering magnet developments at the National High Magnetic Field Laboratory by Mark Bird. The superconductivity session chaired by Dr. Robert Birgeneau, Shull Prize winner, was particularly dynamic and featured an invited talk by Daniel Pratt (University of Iowa/NIST) on long range magnetic order and excitations in CaFe_2As_2 .

The Conference culminated on Thursday with a tour of the NIST Center for Neutron Research in Gaithersburg, MD. Visitors were able to see first hand the newly completed guide hall of the NCNR expansion project. After approximately a year-long shut down for this construction, the facility is back up and running as the new guides and instruments are in the process of being installed.

Chuck Majkrzak and Julie Borchers
*NIST,
USA*