The Neutron Scattering Society of America

www.neutronscattering.org

Press Release, February 4, 2008

The Neutron Scattering Society of America is pleased to announce the 2008 recipients of its 3 major prizes.

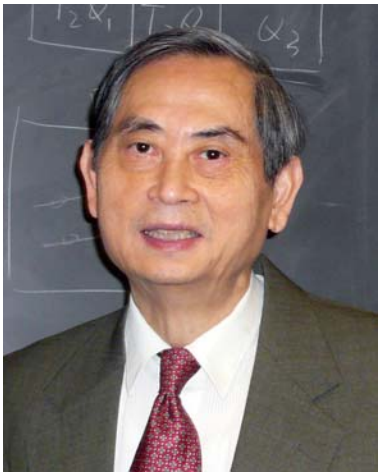
Prof. Sow-Hsin Chen

is the recipient of the

2008 Clifford G. Shull Prize

of the Neutron Scattering Society of America with the citation:

"For seminal contributions to understanding the dynamical properties of supercooled and interfacial water using neutron scattering techniques, and for an exceptional record of training young scientists in the use of scattering techniques to solve topical interdisciplinary problems in complex fluids and soft matter."



Prof. Sow-Hsin Chen

The Neutron Scattering Society of America (NSSA) established the Clifford G. Shull Prize in Neutron Science to recognize *outstanding research in neutron science and leadership promoting the North American neutron scattering community.* The prize is named in honor of Prof. Clifford G. Shull, who received the Nobel Prize in 1994 with Prof. Bertram Brockhouse for seminal developments in the field of neutron science. The establishment of the prize was announced at the inaugural American Conference on Neutron Scattering (ACNS) in 2002.

The nominations were reviewed by a committee of experts in the field of neutron science and the NSSA is pleased to announce the recipient of the 2008 Shull Prize is **Prof. Sow-Hsin Chen** of the Massachusetts Institute of Technology. The prize and $5000 honorarium will be awarded at the 2008 ACNS May 11-15 in Santa Fe, NM (www.lansce.lanl.gov/acns2008/).

Prof. Sow-Hsin Chen's early career interests evolved from the application of space group representation theory to the classification of phonon dispersion relations in complex crystal lattices in the 60's, to the development of photon correlation spectroscopy for studying the critical dynamics in a binary fluid mixture in the 70's, and the development of small-angle neutron scattering methods to determine structures of micelle and microemulsion systems and interactions between proteins in solutions in the 80's. Starting in the early 1980's Chen turned his attention to water, with emphasis on supercooled and confined water. This work discovered the general dynamical properties of "interfacial water", which has broad and profound implications in aqueous chemistry and biology. His group's more recent work has focused on fragile-to-strong and low to high density phase transitions in confined water and hydration water around biopolymers. Since last year, his group has further discovered the existence of the density minimum in supercooled and confined water. This series of work has enabled him to predict the existence of the second (liquid-liquid) critical point in water. A dedicated teacher and mentor, Chen has supervised 40 PhD students, mostly in the general applications of neutron scattering to complex fluids and soft condensed matter.

Prof. Chen received his PhD in 1964 from McMaster University under Prof. B. N. Brockhouse. He joined the Department of Nuclear Science and Engineering of Massachusetts Institute of Technology in 1968, and has been a full professor since 1975. He is a fellow of APS, AAAS, and Japan Society for the Promotion of Science, and an Academician of the Academia Sinica. He has received many honors and awards including the Humboldt Senior Scientist Award from Germany (1987-88), the MIT Department of Nuclear Science and Engineering's Career Achievement Award (2002). He and his co-workers received the 2006 PNAS Editorial Board's Cozzarelli Prize for a paper published in PNAS.

Prof. Sow-Hsin Chen (left), Prof. Cliff G. Shull (center), and Prof. B.N. Brockhouse (right) at the 1995 McMaster University Symposium celebrating Brockhouse and Shull's joint winning of the 1994 Nobel Prize in Physics.

Prof. Frank Bates

is the recipient of the

2008 Sustained Research Prize

of the Neutron Scattering Society of America with the citation:

"For his pioneering SANS experiments that probe the structure and thermodynamics of polymeric fluids and block copolymers."

The Neutron Scattering Society of America (NSSA) established the Sustained Research Prize to recognize a *sustained contribution* to a scientific subfield, or subfields, using neutron scattering techniques, or a sustained contribution to the development of neutron scattering techniques. The primary consideration shall be an enduring impact on science. Preference shall be given to applicants whose work was carried out predominantly in North America.

Prof. Frank Bates

The nominations were reviewed by a committee of experts in the fields to which neutron scattering contributes and the NSSA is pleased to announce that the 2006 recipient of the Sustained Research Prize is **Prof. Frank Bates** of the University of Minnesota. The prize and a $2,500 honorarium will be awarded at the 2008 ACNS May 11-15 in Santa Fe, NM (www.lansce.lanl.gov/acns2008/).

Over the past 25 years Prof. Bates has established himself as a world leader in soft condensed mater, and in particular, as the most innovative practitioner of small angle neutron scattering studies of polymers in the US. As a young scientist, he first showed that the interactions between otherwise identical deuterium-labeled and unlabeled polymer chains, were strong enough for phase separation. This work has provided insight into the nature of subtle intermolecular interactions. He and his collaborators pioneered the use of neutrons to study polymers under flow. He demonstrated that shearing a disordered block copolymer led to a beautifully aligned lamellar phase that disappeared when the shearing stopped, which shed new light on the coupling between fluctuations and external fields. A common thread of Bates' research over the years was to use polymeric materials as test beds for studying a wide variety of critical phenomena encompassing critical scaling, Lifschitz points, order-disorder transitions, and universality classification.

Prof. Bates is currently Regents Professor and Head of the Chemical Engineering and Materials Science at the University of Minnesota, where he has been since 1989. Among many honors he has won the APS Dillon Prize (1989) and Polymer Prize (1997), been elected to the National Academy of Engineering (2002), Materials Research Society's David Turnball

Lectureship (2004) and Fellowship of the AAAS (2005). His service to the neutron scattering community is exemplified by serving as Chairman of the National Steering Group for the Advanced Neutron Source and as President of NSSA (1996-1999).

Prof. Seung-Hun Lee

is the recipient of the

2008 Science Prize

of the Neutron Scattering Society of America with the citation:

"For his innovative and insightful neutron scattering studies of frustrated magnetic systems"

The Neutron Scattering Society of America (NSSA) established the Science Prize to recognize *a major scientific accomplishment or important scientific contribution within the last 5 years* using neutron scattering techniques. Nominees must be within 12 years of receiving their PhD degree. Preference shall be given to applicants whose work was carried out predominantly in North America.

Prof. Seung-Hun Lee

The nominations were reviewed by a committee of experts in the scientific areas to which neutron scattering contributes, and the NSSA is pleased to announce that the 2006 recipient of the Science Prize is **Prof. Seung-Hun Lee** of the University of Virginia. The prize and a $2,500 honorarium will be awarded at the 2008 ACNS May 11-15 in Santa Fe, NM (www.lansce.lanl.gov/acns2008/).

Frustrated systems are ubiquitous and interesting because their behavior is difficult to predict; frustration can lead to macroscopic degeneracies and qualitatively new states of matter. Magnetic systems offer good examples in the form of spin lattices, where all interactions between spins cannot be simultaneously satisfied. Consequently, long-range order in such systems may be impossible and the system may remain in a spin liquid state at all temperature. Prof. Lee made important contributions to understanding the disordered spin liquid state by using inelastic neutron scattering to study the frustrated magnet $ZrCr_2O_4$ where semi-classical (S=3/2) spins form the most frustrating lattice: a network of corner-sharing tetrahedra. Lee and his co-workers developed a model that explained their data in terms of a hidden order in the spin-liquid phase. As the system cools, the spins self-organize into groups of six, forming anti-ferromagnetic hexagonal rings. Their results identified for the first time a fundamental composite-spin degree of freedom in the spin-liquid phase that embodies the zero-energy modes that govern the low energy dynamics.

Prof. Lee is currently an Associate Professor of Physics at the University of Virginia. Prior to this position he spent nearly 10 years at the NIST Center for Neutron Research. His outstanding scientific contributions were previously recognized by the NIST Chapter of Sigma Xi, which awarded him its Outstanding Young Investigator Award in 2004, and in 2002, his being awarded the Outstanding Young Researcher Award by the Association of Korean Physicists in America.