NEUTRON SCIENCES
USERNews Weekly

August 15 –21, 2011 — Oak Ridge National Laboratory Neutron Sciences

No coffee break this week

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RCT Support (radiation control technician)	274-8658
User Support	241-4432
User Office	574-4600
HFIR	
Control Room	574-7035
RCT Support (radiation control technician)	574-6713
User Office	574-4523

SNS Café, Bldg 8600

Breakfast hours: M–F, 7:00 am – 9:30 am

Lunch hours: M–F, 10:45 am – 1:15 pm

HFIR Canteen, Bldg 7910

Lunch hours: M–F, 10:45 am – 1:15 pm

For questions or comments email us: neutronscience@ornl.gov

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Research Spotlight

Building a road map for tailoring polyelectrolyte films using the SNS Liquids Reflectometer

Understanding how water-soluble, layer-by-layer assembled polyelectrolyte films can be tailored for a specific density is key for such applications as controlled drug release in medicine and for oil recovery and water treatment. Two types of polyelectrolytes of opposite charge were assembled in a sequential way**.** Researchers wanted to know if the structure can be varied by systematically tinkering with the salt concentration, the time in solution, and the introduction of other variables. Subsequent annealing in varying sodium chloride solutions over 2, 6 and 12 hour periods allowed researchers to observe whether and how quickly the initial well-defined layers intermixed as a result of the enhanced diffusion of polymer chains. Neutron reflectivity at the SNS Liquids Reflectometer showed peaks in the density of the structures that indicate how well ordered they are under different levels of charge. SNS's Liquids Reflectometer is 10 to 20times faster at collecting data than any other instrument at the SNS, and researchers were able to generate data for a 3-dimensional space of parameters. John Ankner, Svetlana Sukhishvili and her student Li Xu collaborated.

This Week's Users

SNS, BASIS (BL1)
Jacob Jones (Univ of Florida)
Mark Hagen (ORNL NScD)
Joerg Neuefeind (ORNL NScD)

SNS, SNAP (BL3)
Bing Li (Carnegie Inst of Washington)
Kuo Li (Carnegie Inst of Washington)

SNS, Liquids Reflectometer (BL4B)
Roger Pynn (Indiana Univ)
Rana Ashkar (Indiana Univ)
Mikhail Zhernenkov (ANL)
Ryan Toomey (Univ of S. Florida)

SNS, CNCS (BL-5)
Michael Crawford (DuPont)
Mark Hagen (ORNL NScD)
Barry Winn (ORNL NScD)

SNS, EQ-SANS (BL6)
Ramnath Ramachandran (Univ of Cincinnati)
G. Beaucage (Univ of Cincinnati)
Manavalan Gajapathy
William Heller (ORNL NScD)
Kevin Weiss (ORNL NScD)
Leighton Coates (ORNL NScD)
Xiang-Qiang Chu (ORNL NScD)

SNS, VULCAN (BL7)
Zhenzhen Yu (ORISE)
Xiaochuan Xiong (GM Res & Dev Center)
Zhili Feng (ORNL MSTD)
Ke An (ORNL NScD)
Xun-Li Wang (ORNL NScD)

SNS, (BL-11A)
Angus Wilkinson (Georgia Inst of Tech)
Ezra Cates (Georgia Inst of Tech)
Jaehong Kim (Georgia Inst of Tech)
Shouhang Bo (ORNL NScD)
Diane Colabello (ORNL NScD)
Bingfei Cao (ORNL NScD)

SNS, SEQUOIA (BL17)
Young-June Kim (Univ of Toronto)
Kemp Plumb (Univ of Toronto)
Haruhiro Hiraka (Tohoku Univ)
Kazumasa Horigane (Tohoku Univ)
Kenji Ohoyama (Tohoku Univ)
Sun-Chang Choi (Tohoku Univ)

SNS, ARCS (BL18)
Stuart Calder (ORISE)
Brian Sales (ORNL PSD)
Mark Lumsden (ORNL NScD)
Andrew Christianson (ORNL NScD)
Cuihuan Wang (ORNL NScD)
Karol Marty (ORNL NScD)

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Nigel Rhodes (ORNL NScD)
Erik Schooneveld (ORNL NScD)
Kevin Berry (ORNL NScD)
Yacouba Diawara (ORNL NScD)
Cai-Lin Wang (ORNL NScD)
Lowell Crow (ORNL NScD)

HFIR, (CG-2)
Jung Min Kim (Univ of Delaware)
C. Lopez-Barron (Univ of Delaware)
Norman Wagner (Univ of Delaware)
Eric Yearley (Univ of Delaware)
Norman Wagner (Univ of Delaware)
Katelyn Nagy (Univ of Delaware)
Elizabeth Kelley (Univ of Delaware)
Thomas Smart (Univ of Delaware)
Andrew Jackson (NIST)

HFIR, (CG-3)
Kushol Gupta (Penn Univ of PA)
James Chen (Penn Univ of PA)
Nikolina Sekulic (Penn Univ of PA)
Hannah Murnen (Univ of California)
Adrianne Rosales (Univ of California)

HFIR, Cold TAS (CG-4C)
Taro Nakajima (Tokyo Univ of Science)
Cuihuan Wang (ORISE)
Mark Lumsden (ORNL NScD)
Andrew Christianson (ORNL NScD)
Jaime Fernandez-Baca (ORNL NScD)

HFIR, TAS (HB-1)
Jun Zhao (Univ of California)
Masaaki Matsuda (ORNL NScD)

HFIR, TAS (HB-1A)
Min Gyu Kim (Iowa State Univ)
Andreas Kreyssig (Ames Laboratory)

HFIR, Powder Diffractometer (HB-2A)
Huibo Cao (ORISE)
Bryan Chakoumakos (ORNL NScD)
Vasile Garlea (ORNL NScD)
Adam Aczel (ORNL NScD)
Stephen Nagler (ORNL NScD)

HFIR, (HB-2B)
Robin Woracek (ORNL PSD)
Jeff Bunn (ORNL MSTD)

HFIR, (HB-2C)
David Belanger (Univ of California)
Alice Durand (Univ of California)
Shunsuke Hashimoto (Osaka Univ)
Claudia Rawn (ORNL PSD)
Kara Beharry (Univ of Tenn)
Susan Everett (Univ of Tenn)
Bryan Chakoumakos (ORNL NScD)
Jaime Fernandez-Baca (ORNL NScD)
Feng Ye (ORNL NScD)

HFIR, TAS (HB-3)
Zhijun Xu (Brookhaven Nat'l Lab)
Jinsheng Wen (Univ of California)

HFIR, Four Circle Diffractometer (HB-3A)
Amar Karki (Louisiana State Univ)
Jianneng Li (Louisiana State Univ)

Local Happening

8/15/2011 Seminar
On Scalable battery Models and Estimation, Anna Stefanopoulou, Building 8600, Conference Room C-156, 2:30-3:30 p.m.

8/16/2011 Seminar
The Structural Basis for the Coordination of DNA Repair, Matthew Cuneo, Building 8600, Conference Room C-464, 10:00 – 11:00 a.m.

8/16/2011 Seminar
Transformation-Mediated Work-Hardening and Ductility in Bulk Metallic Glass Composites, Z.P. Lu, Building 4500S, Conference Room A-177, 11:00 a.m. – 12:00 noon.

8/18/2011 Seminar
Initial Proton Beam Studies in the SNS Linac, Andrei Shishlo, Building 8600, Conference Room C-250, 1:00- 2:00 p.m.