Integrated Proposal Tracking System

Proposal ID:	IPTS-1459
Date Submitted:	29-JUL-08
Principal Investigator:	W Streets
Institute:	ORNL SNS
Other Institute	
Proposal Type:	General User
Status:	Proposal Approved
Total Days Requested	3
Abstract:	Isotopic substitution is a powerful tool in neutron scattering studies. In this experiment we will observe the self-diffusion of polystyrene (PS) by means of a 500-A-thick deuterated (dPS) layer float-deposited atop a spin-coated 500-A-thick protonated PS layer on a silicon substrate. Students will prepare the film in the beamline 4B wet lab and measure specular reflectivity. We will then anneal the sample for ~30 mins in a vacuour oven and re-measure the reflectivity. Students will fit the data from the two runs to observe changes in the interfacial width of the dPS/PS. We will have backup samples ready in case deposition fails for some reason.
Title:	NX School: Polymer self-diffusion studied by specular reflectivity
Proprietary Data:	No
Classified Data:	No
Student Thesis:	No
Biologically Hazardous Material	No
Animal Matter:	No
Safety Hazard:	No
Related Proposal (S):	IPTS-1452 thru IPTS-1460
Last Updated:	10-SEP-08

Statement of Research

Facilities		

Facility	Operational Cycle	Run Cycle	Cycle Begin Dte	Cycle End Dte	Days Onsite
Spallation Neutron Source	NScD 2008-B	SNS 2008-B	01-SEP-08	28-FEB-09	3

Instruments

Liquids (horizontal surface) Reflectometer (LR) 1 N

Experiment Team Members

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Subject Areas

Dynamics	-
Structural Determination	-

Funding Source

DOE, Office of Basic Energy Sciences

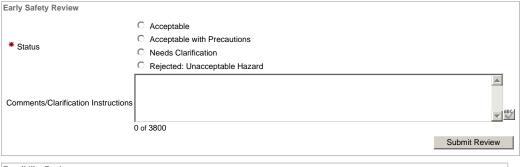
Research Areas

Chemical Physics -

Experiment Samples

Sample Number:	4381
Sample Name:	Polystyrene (PS)
Sample Description:	500-Å-thick deuterated (dPS) layer float-deposited atop a spin-coated 500-Å-thick protonated PS layer on a silicon substrate
Sample Formula:	C9H12
Sample Length:	cm
Sample Width:	cm
Sample Height:	cm
Sample Mass:	cg
Total Number Required:	-
User Supplied Equipment:	-
Local Needs:	-
Sample Hazards:	None
Sample Environment:	-
Sample Environment Conditions	-
Sample State:	Solid
Sample Descriptor:	Thin Film

Dates Unavailable to Attend no data found





Proposal Activity Log

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Date	Activity	Additional Information
29-JUL-2008 14:50:42	Propsal Status Change	Proposal Status changed from INITIAL-SUBMISSION to APPROVED by W Streets.
29-JUL-2008 14:43:56	Initial Submission email	Recipients: ORNL Neutron Sciences User Office ipts@ornl.gov Subject: IPTS-1459 Requests Facilities SNS for Operational Cycle NScD 2008-B
29-JUL-2008 14:43:56	User Office email	Recipients: ORNL Neutron Sciences User Office streets@ornl.gov Subject: IPTS-1459 Submitted Successfully for Operational Cycle NScD 2008-B
29-JUL-2008 14:43:56	Propsal Status Change	Proposal Status changed from PRE-SUBMISSION to INITIAL-SUBMISSION by W Streets.
29-JUL-2008 14:43:56	Spokesman email	Recipients: ORNL Neutron Sciences User Office iupo@ornl.gov Subject: IPTS-1459 proposal requests SNS for Operational Cycle NScD 2008-B
29-JUL-2008 14:43:56	ESH Admin email	Recipients: ORNL Neutron Sciences User Office faganla@ornl.gov,evansiw@ornl.gov,schnellca@ornl.gov,streets@ornl.gov Subject: IPTS-1459 Submitted for NScD 2008-B: Early Safety Review
29-JUL-2008 14:43:56	Feasibility Review email	Recipients: ORNL Neutron Sciences User Office streets@ornl.gov,smithgs1@ornl.gov,anknerjf@ornl.gov,halbertce@ornl.gov,browningjf@ornl.gov Subject: IPTS-1459 Submitted for NScD 2008-B: Feasibility Review
29-JUL-2008 14:43:56	Proposal collaborator email	Subject: IPTS-1459 Submitted Successfully for Operational Cycle NScD 2008-B Recipients: ;streets@ornl.gov;ekkebusae@ornl.gov
29-JUL-2008 14:43:56	Proposal Initially Submitted for Review	Proposal Submitted.
29-JUL-2008 14:43:19	Proposal Initially Created as a Copy of an Existing Proposal	Proposal Created as a Copy of Proposal IPTS-1458.
		1 - 10

Clarification History

no data found

Science Review Details

no data found

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Liquids Reflectometer:

Polymer self-diffusion studied by specular reflectivity (John Ankner)

Isotopic substitution is a powerful tool in neutron scattering studies. In this experiment we will observe the self-diffusion of polystyrene (PS) by means of a 500-Å-thick deuterated (dPS) layer float-deposited atop a spin-coated 500-Å-thick protonated PS layer on a silicon substrate. Students will prepare the film in the beamline 4B wet lab and measure specular reflectivity. We will then anneal the sample for ~30 mins in a vacuum oven and re-measure the reflectivity. Students will fit the data from the two runs to observe changes in the interfacial width of the dPS/PS. We will have backup samples ready in case deposition fails for some reason.