Integrated Proposal Tracking System

Proposal Detail

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 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.
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

Subject Areas

Dynamics	-
Structural Determination	-

Instruments

Liquids (horizontal surface) Reflectometer (LR)	1	N

Funding Source

DOE, Office of Basic Energy Sciences	-

Experiment Team Members

Allen Ekkebus	ekkebusae@ornl.gov	865-241-5644	Editor
Bryan Chakoumakos	chakoumakobc@ornl.gov	865-574-5235	Editor
W Streets	streets@ornl.gov	865-574-6612	Editor
John Ankner	anknerjf@ornl.gov	865-576-5122	PI
Daniel Pratt	dkpratt@iastate.edu		Viewer
Daniel Shoemaker	dshoe@mrl.ucsb.edu		Viewer
Dongli Zeng	dongli.zeng@gmail.com		Viewer
G.W. Chinthaka Silva	silvag2@unlv.nevada.edu		Viewer
Joshua Schaidle	schaidle@umich.edu		Viewer
Jun Wang	jw778@msstate.edu		Viewer
Karl Schmitz	kschmitz@mail.med.upenn.edu		Viewer
Katherine Crispin	klc24@case.edu		Viewer
Lucienne Buannic	lbuannic@ic.sunysb.edu		Viewer
Mads Joergensen	mads@chem.au.dk		Viewer
Paul Stonaha	pstonaha@indiana.edu		Viewer
Rachel Selinsky	rselinsky@chem.wisc.edu		Viewer
Stephen Taylor	taylord@email.uc.edu		Viewer
Tyrel McQueen	tmcqueen@princeton.edu		Viewer
Xin Li	li.719@osu.edu		Viewer
Yu-San Huoh	yhuoh@hotmail.com		Viewer

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

Early Safety Review

* Status
- Acceptable
- Acceptable with Precautions
- Needs Clarification
- Rejected: Unacceptable Hazard

Comments/Clarification Instructions

0 of 3800

Submit Review

Feasibility Review

* Feasibility Status
- Needs Clarification
- Outside Normal Workscope (Fail)
- Within Normal Workscope

Recommended Number of Days

Comments

0 of 3800

Submit Review

Proposal Activity Log

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

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.