NIST Center for Neutron Research (NCNR)

Live Report

22-Feb-2004 8:14:17 AM

There are a total of **65** responses for the selected group from 12-Feb-2004 to 20-Feb-2004.

1. Your position

Percent	Count	Answers
0.0%	0/65	Graduate Student
0.0%	0/65	Post-doc
100.0%	65/65	Professor
0.0%	0/65	Staff Scientist
0.0%	0/65	Other
100.0%	**65/65**	**Summary**

2. Your primary instrument (Please use this instrument as the basis for answers to sections 3 and 4)

Percent	Count	Answers
32.8%	21/64	30m SANS, NG3
23.4%	15/64	30m SANS, NG7
4.7%	3/64	8m SANS, NG1
4.7%	3/64	Reflectometer, horizontal sample geometry, NG7
3.1%	2/64	Reflectometer, polarized beam option, vertical geometry, NG1
4.7%	3/64	Disk Chopper Spectrometer, NG4
3.1%	2/64	Backscattering Spectrometer, NG2
1.6%	1/64	Spin-Echo Spectrometer, NG5
4.7%	3/64	Cold Neutron Triple-Axis (SPINS), NG5
0.0%	0/64	USANS, BT5
9.4%	6/64	Powder Diffractometer, BT1

0.0%	0/64	Residual Stress Diffractometer, BT8
0.0%	0/64	Filter Analyzer Spectrometer (FANS), BT4
6.3%	4/64	Triple-Axis Spectrometer with polarized beam option, BT2
1.6%	1/64	Triple-Axis Spectrometer, BT9
100.0%	**64/64**	**Summary**

3. Please rate the proposal process

1) Ease of proposal submission	2.8/3
2) Referee reports and PAC comments	2.6/3
3) Proposal process fairness	2.5/3
4) Scheduling process following approval	2.8/3

Legends:
Poor
Adequate
Excellent
Overall rating based on the scale from 1 to 3

1) Ease of proposal submission

Percent	Count	Answers
1.6%	1/64	Poor
15.6%	10/64	Adequate
82.8%	53/64	Excellent
100.0%	**64/64**	**Summary**
	2.8/3	Overall rating from 1 to 3

2) Referee reports and PAC comments

Percent	Count	Answers
4.8%	3/62	Poor
33.9%	21/62	Adequate
61.3%	38/62	Excellent
100.0%	**62/62**	**Summary**
	2.6/3	Overall rating from 1 to 3

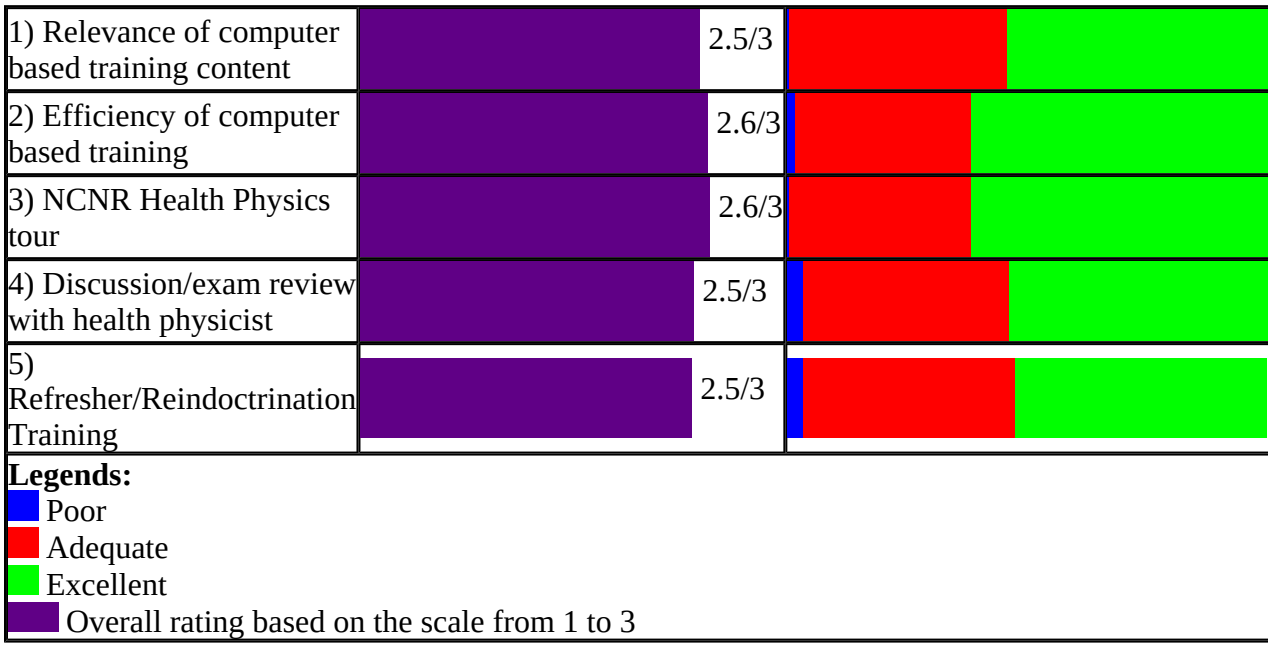
3) Proposal process fairness

Percent	Count	Answers
6.5%	4/62	Poor
32.3%	20/62	Adequate
61.3%	38/62	Excellent
100.0%	**62/62**	**Summary**
2.5/3		Overall rating from 1 to 3

4) Scheduling process following approval

Percent	Count	Answers
0.0%	0/63	Poor
20.6%	13/63	Adequate
79.4%	50/63	Excellent
100.0%	**63/63**	**Summary**
2.8/3		Overall rating from 1 to 3

4. Please rate the effectiveness of the health physics training



1) Relevance of computer based training content

Percent	Count	Answers
0.0%	0/64	Poor
45.3%	29/64	Adequate
54.7%	35/64	Excellent

100.0%	64/64 Summary
	2.5/3 Overall rating from 1 to 3

2) Efficiency of computer based training

Percent	Count	Answers
1.6%	1/63	Poor
36.5%	23/63	Adequate
61.9%	39/63	Excellent
100.0%	**63/63**	**Summary**
	2.6/3	Overall rating from 1 to 3

3) NCNR Health Physics tour

Percent	Count	Answers
0.0%	0/63	Poor
38.1%	24/63	Adequate
61.9%	39/63	Excellent
100.0%	**63/63**	**Summary**
	2.6/3	Overall rating from 1 to 3

4) Discussion/exam review with health physicist

Percent	Count	Answers
3.2%	2/63	Poor
42.9%	27/63	Adequate
54.0%	34/63	Excellent
100.0%	**63/63**	**Summary**
	2.5/3	Overall rating from 1 to 3

5) Refresher/Reindoctrination Training

Percent	Count	Answers
3.3%	2/61	Poor
44.3%	27/61	Adequate
52.5%	32/61	Excellent
100.0%	**61/61**	**Summary**
	2.5/3	Overall rating from 1 to 3

5. Please rate the user support facilities

1) User Laboratory facilities		

	4.0/5
2) Tools and supplies in support labs	3.7/5
3) User Offices	3.0/5
4) NCNR computers for users	3.3/5
5) Network access for user laptops	3.6/5
6) Break/snack room facilities	2.8/5

Legends:
Poor
Adequate
Excellent
Overall rating based on the scale from 1 to 5

1) User Laboratory facilities

Percent	Count	Answers
1.6%	1/64	Poor
29.7%	19/64	Adequate
68.8%	44/64	Excellent
100.0%	**64/64**	**Summary**
4.0/5		Overall rating from 1 to 5

2) Tools and supplies in support labs

Percent	Count	Answers
1.6%	1/64	Poor
40.6%	26/64	Adequate
57.8%	37/64	Excellent
100.0%	**64/64**	**Summary**
3.7/5		Overall rating from 1 to 5

3) User Offices

Percent	Count	Answers
11.3%	7/62	Poor
53.2%	33/62	Adequate
35.5%	22/62	Excellent
100.0%	**62/62**	**Summary**

3.0/5 Overall rating from 1 to 5

4) NCNR computers for users

Percent	Count	Answers
9.7%	6/62	Poor
45.2%	28/62	Adequate
45.2%	28/62	Excellent
100.0%	**62/62**	**Summary**

3.3/5 Overall rating from 1 to 5

5) Network access for user laptops

Percent	Count	Answers
1.7%	1/58	Poor
44.8%	26/58	Adequate
53.4%	31/58	Excellent
100.0%	**58/58**	**Summary**

3.6/5 Overall rating from 1 to 5

6) Break/snack room facilities

Percent	Count	Answers
11.5%	7/61	Poor
57.4%	35/61	Adequate
31.1%	19/61	Excellent
100.0%	**61/61**	**Summary**

2.8/5 Overall rating from 1 to 5

6. Please rate the following aspects of sample environments

1) Availability of different sample environments	3.8/5	
2) Quality and reliability of the equipment	4.0/5	
3) Support from sample environment personnel	4.5/5	

Legends:
Poor
Adequate
Excellent
Overall rating based on the scale from 1 to 5

1) Availability of different sample environments

Percent	Count	Answers
4.8%	3/63	Poor
33.3%	21/63	Adequate
61.9%	39/63	Excellent
100.0%	**63/63**	**Summary**
3.8/5		Overall rating from 1 to 5

2) Quality and reliability of the equipment

Percent	Count	Answers
6.3%	4/64	Poor
23.4%	15/64	Adequate
70.3%	45/64	Excellent
100.0%	**64/64**	**Summary**
4.0/5		Overall rating from 1 to 5

3) Support from sample environment personnel

Percent	Count	Answers
1.6%	1/64	Poor
14.1%	9/64	Adequate
84.4%	54/64	Excellent
100.0%	**64/64**	**Summary**
4.5/5		Overall rating from 1 to 5

7. What other sample environments would you research benefit from

- High speed centrifuge at laboratory facility for sample preparation just prior to neutron runs would be useful, in order to remove particle aggregates that influence low-Q data.
- High pressure cells for neutron scattering
- second shear cell, just in case "the one" is broken.
- better high and ultra high vacuum equipment, atomic force microscopy.
- Pressure cell for liquids
- more and better low temperatrue (< 1 K) environments, especially if they are available with and without high fields.
- More cryostats with high-field magnets.
- I have used NG7, NG3, NG1, NG1 Reflectometry and have found all facilities and assistance to be outstanding. I am interested in also accessing USANS BT5 and in learning more about neutron spin-echo capabilities.

- More on high presure for supercritical fluid applications
- T- Control
  Shear Cell
- Variable oxygen partial pressure
- smaller sample holders (for precious samples)
  better temperature regulation and monitoring (biological samples)
  most of this OK for SANS, but we found that other equipment (pressure cells, sample holders for disk chopper spectrometer, etc) were designed for polymeric materials and not appropriate for biological samples.
- The major need is to be able to use chemicals and solvents which are volitile so that odor will be detected during use in the SANS/USANS work. A good hood system which is portable and can be used to remove the air column, near the sample holders, to exhaust it outside would provide major flexibility for doing chemical reactions which generate phases or particles within the beam.
- Parallel Plate Polymer Melt Rheometer
- different magneic fields, wider temperature ranges
- N/A
- 15 T magnet
  Low T high pressure equipment
  modern 3He system

8. Please rate your primary NCNR instrument

1) Hardware reliability and performance	4.3/5
2) Data acquisition software	4.0/5
3) Support from NCNR staff	4.9/5

Legends:
Poor
Adequate
Excellent
Overall rating based on the scale from 1 to 5

1) Hardware reliability and performance

Percent	Count	Answers
0.0%	0/64	Poor
21.9%	14/64	Adequate
78.1%	50/64	Excellent
100.0%	**64/64**	**Summary**

4.3/5 Overall rating from 1 to 5

2) Data acquisition software

Percent	Count	Answers
3.2%	2/63	Poor
28.6%	18/63	Adequate
68.3%	43/63	Excellent
100.0%	**63/63**	**Summary**

4.0/5 Overall rating from 1 to 5

3) Support from NCNR staff

Percent	Count	Answers
0.0%	0/64	Poor
4.7%	3/64	Adequate
95.3%	61/64	Excellent
100.0%	**64/64**	**Summary**

4.9/5 Overall rating from 1 to 5

9. Please rate data analysis and visualization software at the NCNR

1) Quality of software	3.7/5
2) Range of capabilities	3.7/5
3) Assistance from NCNR staff	4.5/5

Legends:
Poor
Adequate
Excellent
Overall rating based on the scale from 1 to 5

1) Quality of software

Percent	Count	Answers
3.2%	2/62	Poor
40.3%	25/62	Adequate
56.5%	35/62	Excellent
100.0%	**62/62**	**Summary**


3.7/5 Overall rating from 1 to 5

2) Range of capabilities

Percent	Count	Answers
3.2%	2/62	Poor
40.3%	25/62	Adequate
56.5%	35/62	Excellent
100.0%	**62/62**	**Summary**


3.7/5 Overall rating from 1 to 5

3) Assistance from NCNR staff

Percent	Count	Answers
0.0%	0/62	Poor
17.7%	11/62	Adequate
82.3%	51/62	Excellent
100.0%	**62/62**	**Summary**

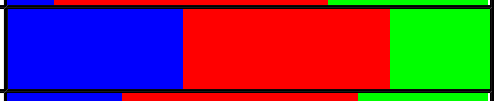

4.5/5 Overall rating from 1 to 5

10. What other data analysis tools would your research benefit from

- Something like "spyglass transform" for easy and immediate presentation of SANS spectra in 2d and 3d format.
- Use of stretched exponential functions. More friendly version for user defined fit functions. Fit functions that I'm usually using do not produce stable fit results.
- More reliable software on NG1
- One element of our data analysis that has been frustrating is the difficulty in fitting a polydisperse form factor model to our scattering data. We know from experience that some of our samples form aggregates that are oblate ellipsoidal with solvent entrainment and we know they are polydisperse. It has been difficult for us to adequately fit our sample data to the "polydisperse cylinder" model that NIST makes available because the program is not sufficiently robust. Otherwise, all sample analysis tools have been outstanding.
- A clear manual for the use fo these tools and ease of external access.
- The data analysis tools at SPEAR (Los Alamos) seem to be somewhat more intuitive and easier to use.
- Fast Fourier Transform of spectra
- Internet collaborative interaction for off site people on the experiment.
- Non command-line data reduction, including real-time display of array data and I(q) if calibrations and transmissions have been run, possibly with LabVIEW. Automation of data reduction, expecially piecing together low and high q datasets. Direct link of reduced I(q) to PC or Mac to Kaliedagraph or Excel spreadsheet file and/or plot.
- The Igor based software has been invaluable. Steve Klein's help in adding some new macros was greatly appreciated.
- We perform SANS under flow resulting in asymmetric 2D patterns. While techniques for

analyzing these patterns are being developed it will be key that new analytical tools be easily incorporated into existing NCNR analysis software.
- a standard comprehensive data file format

11. Please rate to what extent these forms of remote access (would) benefit your research program

1) Remote viewing of instrument status and data	2.2/3	
2) Remote control of instrument	1.8/3	
3) Mail in samples for simple, well defined measurements	2.0/3	

Legends:
Not for me
Useful
Essential
Overall rating based on the scale from 1 to 3

1) Remote viewing of instrument status and data

Percent	Count	Answers
9.5%	6/63	Not for me
57.1%	36/63	Useful
33.3%	21/63	Essential
100.0%	**63/63**	**Summary**
2.2/3		Overall rating from 1 to 3

2) Remote control of instrument

Percent	Count	Answers
36.5%	23/63	Not for me
42.9%	27/63	Useful
20.6%	13/63	Essential
100.0%	**63/63**	**Summary**
1.8/3		Overall rating from 1 to 3

3) Mail in samples for simple, well defined measurements

Percent	Count	Answers
23.8%	15/63	Not for me
49.2%	31/63	Useful
27.0%	17/63	Essential

100.0% 63/63 Summary

2.0/3 Overall rating from 1 to 3

12. Please list any neutron instruments not currently at the NCNR that would benefit your research program or the community in general.

- Higher neutron flux would be useful
- magnetic neutron spin echo
- a modern thermal triple axis instrument
- A better capability to go to high q with a strong magnetic field and a furnace/cryostat . Polarized beams.
- Single crystal diffractometer
- some supplemental x-ray equipment for simple characterization while doing neutron experiments. For example x-ray reflectivity for film thickness determination while running neutron refelctivity. This capability exists at NCNR but is not easily available to visiting users (though the management such a facility might be difficulty).
- spin-polarized SANS
- dedicated polarized beam spectrometer
  four circle single crystal diffractometer
  polarized beam diffractometer

13. Are there any other comments or suggestions about the NCNR that you would like to add?

- This is an excellent facility which I hope will continue to develop and grow.
- the NIST-NCNR is probably the greatest American scientific asset and it deserves to be funded at the requested level or more.
  X.S. Ling, Associate Professor of Physics
- This is a great facility made all the more wonderful by the personnel I work with and have interacted with (Hammouda, Kline, Glinka).
- Remote viewing apparatus to see samples during runs without interruptions.
- I am now retired and am no longer using the neutron scattering facilities. However, I was one of those responsible for first establishing SANS facilities in the US, first at ORNL and later at NIST. I was a member of the Seitz-Eastman Committee which urged the creation and development of these facilities. I recognized the need for these which have been very valuable for my previous work and appreciate the need for their continued development and support in order that the US remain at the forefront of research. My experience at NIST was that the facility is very well run and serves a very important function. I strongly urge its conti9nued support.
- More spare parts and second quartz shear cell, just in case something is broken.
- I would like to indicate my satisfaction with the staff. They have been extremely helpful.
- My experience at the NCNR is the best I have had in comparison other user facilities through out the country (which in general has been from good-very good). The scientific output from the neutron reactor as I have seen it is exceptionally good.
- NCNR became real external user-friendly facility. However, I guess, the user community

will broaden even more if NCNR will provide travel support for users (the way it works, for example, at ILL or ESRF in Grenoble). NCNR supports (with a limited amount) first time users only. When I'm coming with 2-3 students for ~7-10 days to Gaithersburg, it requires large travel money. The system like the one existing in Grenoble will remove this concern and will broaden user community that at the end will result in more effective use of NCNR.

- Great facility and great people!!
- NCNR is a premier neutron scattering facility in terms of the operation policy, resource development and user assistance, #1 in the US and arguably that internationally. It deserves the strongest support possible.
- AN excellent facility, world-class personnel, and unique instruments.
- More available beam time, for both proposal based and collaborative work.
- By and large, my experiences at NIST have been superb. The staff -- health physics, scientific, beamline -- are knowledgable, friendly, and a joy to work with. I am pleased to do anything in my power to assist in keeping the facility vibrant and active.
- There seems to be no correlation between the quality of the proposals, and the significance of the results, as indicated by the literature, and the acceptance or rejection. It seems that any new idea faces a very strong resistance while old; pretty much variations on old experiments are welcomed. It defeats the purpose of a dynamic scientific place.
- This is a wonderful program.
- I use several of the national neutron facilities and, although some of the other facilities in principle have more extensive capabilities, NCNR is by far my first choice because of the excellent support that the staff provide and the reliability of the instrumentation.
- I have found staff to be quite knowledgeable and helpful.

  Proposal process and allocation of instrument time seems somewhat politicized; I wonder whether we have received time in the past because of personal connections.

  I wish quasi-elastic and inelastic experiments could be made more sensitive and more useable for biological samples. These applications are unique to neutrons (as opposed to X-rays), and it would be great to exploit them.
- This was our first experience at NCNR. Neutron scattering brings an important added dimension to experimental efforts in structural biology of macromolecular machines, and we wanted to explore its potential. I can say without qualification that the scientists and staff at NCNR with whom we interacted were helpful and patient with us (my post doc and gradurate student) in preparing samples, collecting data, and assisting us with the analysis and interpretation.The operation is an excellent model for how a national user facility should operate. Keep up the good work.
- The program bringing graduate students to NIST to conduct experiments based on their submission of short proposals is a superb concept and of enormous value. There is no way we could have ever gotten into the use of Neutron scattering or learned so much about its value without this program. Dr. Glinka and his staff are to be congratulated on contributing to the success of many research programs and for "spreading the neutron gospel" through their excellent service to the scientific community through this program. If ever a program deserved expansion, this is it.
- As I hope is apparent by my responses above, I have had very good experiences at NIST, both in terms of using instruments and interacting with staff scientists. I have used both the SANS and USANS instruments.

- Best neutron scattering site in the US and world class facility overall.
- I think that the remote experimentation capability is a very important improvement that could be used to assess feasibility of some kinds of experiments. I am setting up a remote experimentation user facility in my laboratory since I am based on the west coast. This facility is equipped with computers, video projectors, and interaction areas especially designed to facilitate remote experimentation.
- I hope that the level of support and stability of personel will continue. It makes coming to the NCNR a pleasure.
- A larger sample environment support group
  A modern triple axis instrument control system