

As of June 2021

***Report from AONSA Office***  
-After EC meeting in November 2020 by online

**Budget**

Issue receipts of Annual Fee by secretary's name.  
Payment for Annual Maintenance fee of AONSA domain.  
Confirm and update deposit / withdrawal of the bank account as required.

**Collecting Annual Fee (membership fee 2021)**

Collect AONSA annual membership fees from the member associations.  
Issue the Invoices and receipts by secretary's name.

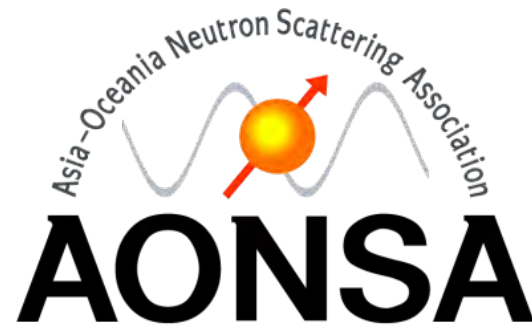
**Preparation for budget report of EC meeting**

Send all revenue and expenditure report with copies of the account book and bankbooks to treasurer by email.

**Message from AONSA Office**

Following announcements were distributed to the AONSA members.  
March 24 - (Advanced Notice on J-PARC MLF 2021B Call for General Use Proposals  
(Short-term and One-year)

# AONSA EC Meeting Financial Report



Hsiung Chou (Treasurer of AONSA, TWNSS)

2021-06-26

Video Meeting

2020-11-28

AONSA Annual fee (JPY) - by category		
	2020/06/20 2020/11/28	2020/11/28 2021/06/24
Category	Income	Income
Previous Balance	9,090,820	9,693,749
Annual fee	626,460	1,092,999
Donation	103,840	761,690
interest	39	42
Total amount	9,821,159	11,548,480
Category	Expense	Expense
AONSA travels		
AYRF 2020		
EB & domain charge	19,800	22,524
Bank handling charge	3,770	5760
Transfer to Prize Fund	103,840	761,690
Total amount	127,410	789,974
Total Balance	9,693,749	11,548,480

Annual Fee (\$2000) :

KNBUA, ANBUG(2025), INSS(2022.5) , CNSS, TWNSS  
JSNS, NSSI, Tailand, Malaysia

Donations (\$1000Xn):

KNBUA:1000; ANBUG:1000; CNSS:1000; ; TWNSS:1000;  
Voluntary Additional Fee: ANBUG:2000; TWNSS:1000

- The Base membership fee: \$2,000
  - AONSA Prize Fund fee: \$1,000
  - Voluntary additional fee: \$1,000 x \_\_\_ units
- Total annual membership fee: \_\_\_\_\_

AONSA travels:

AYRF:

EB charge (JPY 2200/month, internet banking monthly)

Domain & Website charge (JPY 7124)

Bank handling charge (JP Payment, USA->JPY:1000,  
Office->Prize:770)

~\$104,920 (←\$75,000 of 2019)

2020-11-28

AONSA Prize Fund				
Date (Y/M/D)	Item	Income (JPY)	Expense (JPY)	Balance (JPY)
2020/11/25	Previous balance in 2019	3,497,847		3,497,847
2021/02/22	Interest	15		3,497,862
2021/06/18	Donation	541,550		4,039,412
2021/06/24	Donation	220,140		4,259,552
	<b>Total amount</b>	<b>4,259,552</b>	<b>0</b>	<b>4,259,552</b>

~\$38,700 (←26970 of 2019)

# AONSA **future** (NEXT 6 MONTHS) **budge plan**

## Income

AONSA Annual Fee: \$4000  
Interest: few  
Donation: \$~1000

## Expense

YRF \$0  
12<sup>th</sup> Neutron Sch \$0  
EB charge: \$ ~150 JPY4400/month  
Bank Handling: \$ ~100 dep. on handling process

**OFFICE ~ \$108,920** (←\$75,000 of 2019)

**PRIZE ~ \$39,700** (←\$26,970)

Financial Balance of 2020-11-28 EC Meeting

2020-11-28

AONSA Annual fee (JPY) - by category

	2019/11/12 2020/06/20	2020/06/20 2020/11/28
Category	Income	Income
Previous Balance	8,256,695	9,090,820
Annual fee	860,540	213,055+207,680+205,725
Donation	426,860	103,840
interest	35	39
AOCNS2019 refund	429,315	
Total amount	9,973,445	9,821,159
Category	Expense	Expense
AONSA travels	224,501	
AYRF 2020	185,950	
EB & domain charge	42,324	4,400+4,400+4,400+4,400 +2,200
Bank handling charge	2,990	1,000+1,000+1,000+770
Transfer to Prize Fund	426,860	103,840
Total amount	882,625	127,410
Total Balance	9,090,820	9,693,749

Annual Fee (\$) :

TWNSS, CNSS, ANBUG, JSNS,  
INSS(2000), KNBUA(2000), NSSI(1985)

Donations (\$) :

CSNS:1000; ANBUG:2000; JSNS:1000;  
KNBUA:1000

AONSA travels:

Mahn Won Kim & Yasuhiko Fujii

AYRF:

Mingyoung Yoon, Chi-Hung Lee

EB charge (JPY 4400/month, internet  
banking monthly)

Domain charge (JPY 7124)

Bank handling charge (JPY, USA->JPY:1000,  
Office->Prize:770)

~\$93,500 (←\$75,000 of 2019)

2020-11-28

<b>AONSA Prize Fund</b>				
<b>Date (Y/M/D)</b>	<b>Item</b>	<b>Income (JPY)</b>	<b>Expense (JPY)</b>	<b>Balance (JPY)</b>
2019/11/08	Previous balance in 2019	<b>2,967,121</b>		<b>2,967,121</b>
2020/02/17	Interest	13		2,967,134
2020/06/11	Donation	426,860		3,393,994
2020/08/17	Interest	13		3,394,007
2020/11/25	Donation	103,840		3,497,847
	<b>Total amount</b>	<b>3,497,847</b>	<b>0</b>	<b>3,497,847</b>

~\$33,700 (←26970)



# AONSA **future** budget plan

## Income

AONSA Annual Fee: \$14000  
Interest: few  
Donation: \$~5000

## Expense

YRF \$~6000  
12<sup>th</sup> Neutron Sch \$~3000  
EB charge: \$ ~250 JPY4400/month  
Bank Handling: \$ ~120 dep. on handling process

Financial Balance of 2020-06-20 EC Meeting

2020-06-20

AONSA Annual fee - by category	
Category	Income (JPY)
Previous Balance	8,256,695
Annual fee	860,540
Donation	426,860
interest	35
AOCNS2019 refund	429,315
Total amount	9,973,445
Category	Expense (JPY)
AONSA travels	224,501
AYRF 2020	185,950
EB & domain charge	42,324
Bank handling charge	2,990
Transfer to Prize Fund	426,860
Total amount	882,625
<b>Total Balance</b>	<b>9,090,820</b>

### Annual Fee :

TWNSS, CNSS, ANBUG, JSNS

### Donations:

CSNS:1000; ANBUG:2000;  
JSNS:1000

### AONSA travels:

Mahn Won Kim & Yasuhiko Fujii

### AYRF:

Mingyoung Yoon, Chi-Hung Lee

EB charge (JPY4400/month)

Domain charge (JPY7124)

internet banking monthly charge

~ \$85,500 (+8,000+2,500)

2020-06-20

<b>AONSA Prize Fund</b>				
<b>Date (Y/M/D)</b>	<b>Item</b>	<b>Income (JPY)</b>	<b>Expense (JPY)</b>	<b>Balance (JPY)</b>
2018/11/08	Previous balance in 2019	2,967,121		2,967,121
2018/02/18	Interest	13		2,967,134
2019/05/17	Donation	426,860		3,393,994
	<b>Total amount</b>	<b>3,393,994</b>	<b>0</b>	<b>3,393,994</b>

~\$31,900 (+4000)

# AONSA future budget plan

## Income

AONSA Annual Fee: \$6000  
Interest: few  
Donation: \$1000

## Expense

YRF \$~6000  
12<sup>th</sup> Neutron Sch \$~3000  
EB charge: \$ ~250 JPY4400/month  
Bank Handling: \$ ~120 dep. on handling process

## Mid-carrier award proposal (2021/06/10 Taku J Sato)

### Discussion (2020/11/15) summary:

- Mid-carrier award was discussed. The necessity of the mid-carrier award was confirmed. Target carrier may be over 10 years after receiving Ph.D, filling the gap between YRF and AONSA Prize. It is important to award mid-carrier scientist together with the AONSA prize, the mid-carrier award should be given every two years. It was noted that the diversity of the communities in the Asia-Oceania region should be taken into account when the rules for the mid-carrier award is made.
- Target carrier
  - 8 years to 20 years? (30-50 years old)
  - Recent year contribution or accumulated contribution?
- Science, Instrumentation or Community Service?
- Award periodicity (annually or every two years)
- Selection style
  - Together with AONSA Prize
  - Separate committee

Below is a proposal for the above bullet points to the Prize committee members. Sentences in blue are my proposals. This is just to stimulate discussion in the committee, so please feel free to give your opinion.

1. Necessity of mid-carrier award was confirmed. No need to discuss.
2. Target carrier was almost agreed:
  - a. In view of the AONSA YRF (up to 8 years from Ph.D) and AONSA Prize (generally senior or retired researcher), 8 to 20 years from Ph.D should be target.
3. Recent year contribution or accumulated contribution?
  - a. Since the target is not young researchers, accumulated contribution should be evaluated.
4. Science, Instrumentation and/or community service?
  - a. Since we have AONSA Prize which is for mixed evaluation of scientific achievement and community service, I think this mid-carrier award is to be given for the scientific achievement. At least, I believe that AONSA should have one award purely for science. However, if we go for this, "how can we take regional balance" would be an issue. Instrumentation is another point to discuss.
5. Award periodicity was almost agreed:
  - a. Every two years. Given together with the AONSA prize.
6. Selection style
  - a. My idea is to select by the AONSA Prize committee, so that the two prizes (AONSA Prize and Mid-carrier Prize) may be selected with contrast/complementarity.
7. Award name?
  - a. ??? Any good idea?



# AONSA Prize

(Established on October 5, 2010)

The Asia-Oceania Neutron Scattering Association (AONSA) awards the AONSA Prize every two years to a person or persons to recognize his/her or their outstanding research career with a significant impact or contribution to the use or development of neutron science and technology in the Asia-Oceania Region.

## 1. Rules

- a. The Prize shall ordinarily be awarded to one person but may be shared by no more than three persons when all the recipients have contributions to the same accomplishment. Recipient(s) should receive the AONSA Prize only once.
- b. The Prize consists of a certificate citing the contributions made by the recipient(s) and a monetary prize. The amount shall be decided by the AONSA Executive Committee (hereafter referred to as the EC). Where the award is shared, the prize money shall be equally divided amongst recipients.

## 2. Nomination and Eligibility

- a. Nomination shall be opened to anyone whose work has **significantly impacted or contributed to the Asia-Oceania Region.**
- b. Anyone (not a member of the AONSA Prize Selection Committee (hereafter referred to as the SC)) may submit one nomination or seconding letter for the Prize.
- c. A nomination should include:
  - A letter of not more than 5,000 characters evaluating the nominee's qualification for the Prize and identifying the specific work to be recognized.
  - A brief curriculum vitae
  - A short list of major publications
  - Up to five reprints/preprints
  - At least two, but not more than four seconding letters
- d. Nomination should be electronically submitted to Chair of the SC by the deadline issued by the SC.
- e. Nomination shall be active through two review cycles (4 years). Nominations may be updated while still active.

## 3. Selection Committee



- a. The SC shall consist of seven members. The Chair shall be the AONSA Vice President and the other six members shall be appointed by the EC. Their term shall be two years (one selection cycle). A member can be reappointed for the next selection cycle (up to two cycles for four years).
- b. The SC shall be independent of the EC. Nominations shall be treated in confidence within the SC.
- c. The SC members shall represent a broad range of member societies (not observers) and fields of neutron science and technology. The Chair of the SC may co-opt a person or persons from member societies or from observer country/region when none of five members can cover research field(s) for reviewing nominations submitted. Co-opted member(s) shall be approved by the EC.
- d. The SC members shall be posted on the home page of AONSA when the SC issues the call-for nominations. The co-opted member(s) shall also be posted.
- e. The SC shall submit the name(s) of recipient(s) with a report of nomination process to the EC prior to five months to Prize Ceremony at the quadrennial Asia-Oceania Conference on Neutron Scattering (AOCNS) or the quadrennial International Conference on Neutron Scattering (ICNS), both held in an interval of two years.
- f. The SC shall carry out AONSA Prize Ceremony at AOCNS or ICNS.

# The 21<sup>th</sup> Facility Directors Meeting

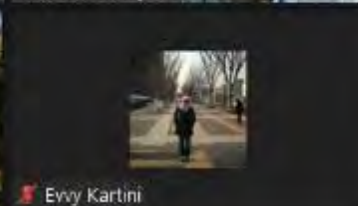
Date: June 25, 2021

Time: Sydney 1:00 pm; Japan & Korea 12:00 pm; China  
11:00 am; Indonesia 10:00 am; India 8:30 am.

Duration time: 4:00 (without a break)

Location: ZOOM internet conference

Number of participants: 24



## **Participants (24 persons):**

[Chair]

Kenji Nakajima (JRR-3/J-PARC/JAEA)

[FDM Members]

Wanchuck Woo (HANARO)

Hesheng Chen (CSNS)

Fangwei Wang (CSNS)

Toshiya Otomo (J-PARC/KEK)

Masayasu Takeda (JRR-3/JAEA)

Jamie Schulz (OPAL)

Kai Sun (CARR/CIAE)

P. U. Sastry (DHRUVA)

Iwan Sumirat (G. A. Siwabessy)

Dong Liu (CMRR)

[EC Board Members]

Dongfeng Chen (President, CNSS, CIAE)

Jae-Ho Chung (Secretary, KNBUA, Korea Univ.)

Hsiung Chou (Treasurer; TWNSS, National Sun Yat-Sen U)

David Cortie (Public Relations Officer, Univ. of Wollongong)

S. M. Yusuf (Member-at-Large, NSSI, BARC)

[EC Members]

Hesheng Chen (CNSS, IHEP)

Kazuhisa Kakurai (JSNS, CROSS)

Tracy Rushmer (ANBUG, Macquairie U)

Yun Liu (ANBUG, Australian National U)

Chun-Chuen Yang (TWNSS, CYCU)

Evvy Kartini (INSS, BATAN)

[Observers]

Andrei Gubkin (Russian Observer, IVV-2M)

Hideki Seto (AONSA Office Liaison; J-PARC/KEK)

## Agenda:

1. Opening remarks
2. Self-introduction of attendees
3. Purpose & Role of the FDM
4. Approval of Agenda
5. Review of last meeting notes
6. Facility Updates
  - (1)J-PARC : Toshiya Otomo
  - (2)JRRR-3 : Masa Takeda
  - (3)CSNS : Fangwei Wang
  - (4)HANARO : Wanchuck Woo
  - (5)CARR/CIAE : Kai Sun
  - (6)CMRR : Dong Liu
  - (7)Dhruva : P. U. Sastry
  - (8)G. A. Siwabessy : Iwan Sumirat
  - (9) IVV-2M : Andrei Gubkin (\*Russian Observer's talk)
  - (10) OPAL : Jamie Schulz
7. AONSA businesses
  - (1)AONSA Young Research Fellowship
  - (2)AONSA School
8. Discussion
  - (1)International Facility Directors Meeting
  - (2)Follow actions from AOCNS instrument scientist workshops
  - (3)Discussion on International Software Collaboration - specifically Mantid
  - (4)Next chair
9. Closing remarks

# Summary of J-PARC MLF

- ◆ Stable 600 kW operation achieved.
  - 700 kW operation was started from April 2021
- Users visit from overseas are still limited under COVID-19.
  - Preparing guidelines for remote control experiment
    - Reduction of workload of MLF staff and realization of efficient experiment environments
- Call for proposal of 2021B
  - 398 applications proposed (including muon)

mlf ftp





*Masayasu Takeda, and Shigeru Wada (JAEA) ,  
Osamu Yamamuro (ISSP)*



## JAEA

- The reactor restarted on Feb. 26 2021
- 130 proposals were received and approved
- The general user program starts in July
- New cold neutron guides provide at least doubled neutron flux than before

## ISSP

- 107 of 176 proposals were approved
- Overseas-Experiment Program since 2012 was put an end. This program sent almost 400 people to overseas neutron experimental facilities and conducted 300 experiments.



## CSNS facility report summary

- Phase-I neutron instruments are opening for users, the COVID-19 pandemic has a little affect. In the past year, more than 100 user experiments have been conducted, and many important scientific results were achieved.
- The Multi-Physics Instrument (MPI, total scattering) is in its commissioning state, and will be opened to users in next round. Other seven users neutron instruments are under construction, and most of them will be commissioned by the end of 2022.
- CSNS Phase-II has been approved by the central government.





# Status of CMRR and facilities



- CMRR run 218 days in 2020
- No. of users were 86 in 2020 and less than 2019 due to the COVID-19
- No. of papers were 51, the proportion of top publications was more than 10% in 2020
- Four new instruments will be commissioned in 2021



# HANARO Neutron Facility Updates



HANARO Neutron Facility Updates (June. 25th, 2021)

Wanchuck WOO (Neutron Science Division, Korea Atomic Energy Research Institute)

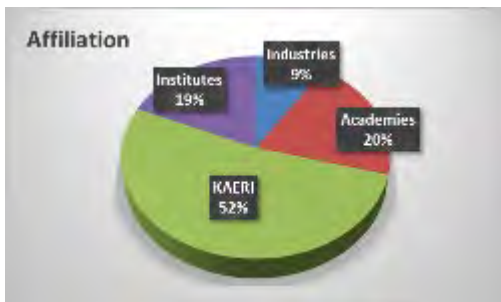
## Status & Schedule of HANARO

HANARO restarted to operate on May 7th (100 run cycle) and ends on Oct. 22nd (103 run cycle) in 2021. (Four cycles have 112.5 running days). The power was 30 MW in 100 run cycle and will be down to 25 MW in 101~103 run cycle due to the cooling capability and safety issue during summer. During winter, reactor maintenance and safety permission check will be processed.

HANARO POWER OPERATION SCHEDULE													
Year	Run - Operation Day							Schedule	Cycle (day)	Power (MW)	100D	24D	E.C.
	Mon	Tue	Wed	Thu	Fri	Sat	Sun						
2021	05	07	08	09	10	11	12	Shutdown 01.01.00-01.01.00	1	30			
	13	14	15	16	17	18	19	Operation	2	30			
	20	21	22	23	24	25	26	Operation	3	30			
	27	28	29	30	31			Operation	4	30			
	06	07	08	09	10	11	12	Shutdown 02.01.00-02.01.00	5	25			
	13	14	15	16	17	18	19	Operation	6	25			
	20	21	22	23	24	25	26	Operation	7	25			
2021	27	28	29	30	31			Operation	8	25			
	06	07	08	09	10	11	12	Shutdown 03.01.00-03.01.00	9	25			
	13	14	15	16	17	18	19	Operation	10	25			
	20	21	22	23	24	25	26	Operation	11	25			
	27	28	29	30	31			Operation	12	25			
	06	07	08	09	10	11	12	Shutdown 04.01.00-04.01.00	13	25			
	13	14	15	16	17	18	19	Operation	14	25			
2021	20	21	22	23	24	25	26	Operation	15	25			
	27	28	29	30	31			Operation	16	25			
	06	07	08	09	10	11	12	Shutdown 05.01.00-05.01.00	17	25			
	13	14	15	16	17	18	19	Operation	18	25			
	20	21	22	23	24	25	26	Operation	19	25			
	27	28	29	30	31			Operation	20	25			
	06	07	08	09	10	11	12	Shutdown 06.01.00-06.01.00	21	25			
2021	13	14	15	16	17	18	19	Operation	22	25			
	20	21	22	23	24	25	26	Operation	23	25			
	27	28	29	30	31			Operation	24	25			
	06	07	08	09	10	11	12	Shutdown 07.01.00-07.01.00	25	25			
	13	14	15	16	17	18	19	Operation	26	25			
	20	21	22	23	24	25	26	Operation	27	25			
	27	28	29	30	31			Operation	28	25			
2021 Total										3276.0	112.5		

## User Recovery

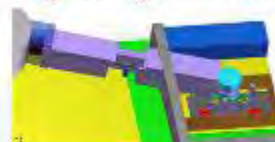
HANARO stopped in 2014 and had been long standing period for about 7 years. We do not hurry and pursuing stable facility for the proper operation of instruments. User recovery is our 1st duty though, it is anticipated at least 2~3 years. During 100 run cycle (28 beam days), 10 instruments were working, 8 instruments served a total of 31 beamtime proposals. 8 instruments are RSI, ENF, NRF, HRPD, REF-V, 40M-SANS, 18M-SANS, KIST-USANS. (FCD, Cold-TAS is under commissioning). For the 101-102 run cycles, more than 50 user proposals are ready for now. In 2022, the international User Program could be launched (Un-tact service program).





- No neutron beamtime for NS Last 6 month. According the operation schedule, CARR will run over 80 days at 30MW in the second half of the year
- Engineering Diffractometer ready to run, Neutron Imaging and Activation Analysis facilities under installation
- Exciting scientific applications including: Lunar and Sanxingdui samples
- Good progress on young researcher training and collaborations

### Engineering Diffractometer ready to run



Small gauge volume  
0.3×0.3×0.3 mm<sup>3</sup>



Thick component  
200 mm in thickness

### PhD :

Yuqing LI, Hongliang WANG, and Bonan LI

### Master degree:

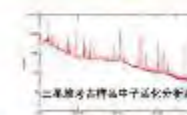
Shibo YAN, Qiuping WU, Yuhan HOU, Xinyu XU



Chang'e 5 lunar sample



Sanxingdui Ruins sample



Neutron Activation analysis



**Neutron Scattering Facilities  
Bhabha Atomic Research Centre, Mumbai, India**

**EC Meeting 26 June 2021 8.30  
AM**

**Neutron source type:** Reactor (Dhruva)  
**Reactor Power:** 100 MW (Thermal)  
**Neutron beam instruments (operational) (12)**



**Upgradation of Neutron Guides at GT lab (2)**

**Design Fabrication and testing of  
prototype guides (500 mm & 1000 mm)**



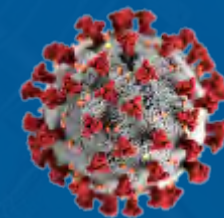
**Recent scientific highlights  
~ 30 publications (2021)  
in high impact journals**







# ANSTO Status Report - Jamie Schulz



- Reactor & Cold Source both have run well
  - 6 Week Reactor Outage March-April 2021
- Commenced 3 month outage of the Neutron Guide Hall Instruments in May for TG123 primary shutter replacement
- Renewed agreements with J-PARC, Taiwan & NSRRC
- Successful ARC Discovery, Infrastructure & Linkage Grants with University Partners
- ACNS operating under ANSTO COVIDSafe arrangements
  - Mail-in for international where feasible
  - Online workshops & Schools



**ONLINE EVENT**

Scientist  
Australian Centre for Neutron Scattering  
Early Career Researcher Clip Day

25 Feb at 10.00am - 26 Feb at 5.00pm

📍 Online event • Online via Zoom

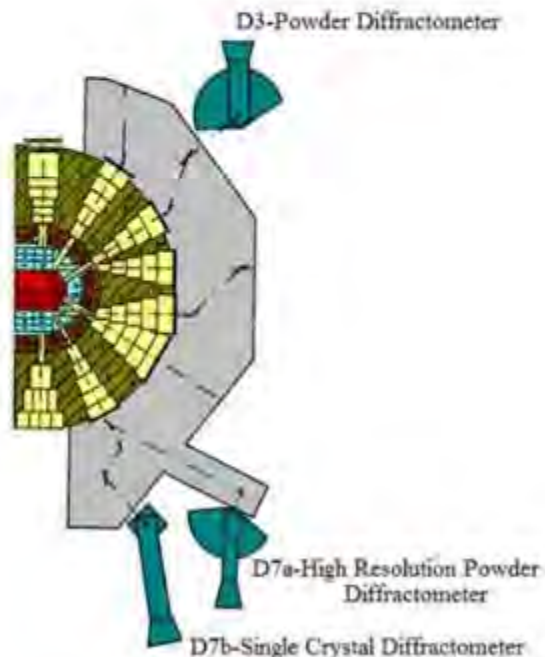
**SCHOOL**

Student  
ANSTO Small-Angle Scattering User Workshop

8 Dec at 9.00am - 10 Dec at 5.00pm

📍 Online event • ANSTO • Online

## Reactor IVV-2M, 15 MW (Ekaterinburg, Russia)



Reactor start-up: 1966

Fuel: Highly enriched  $\text{UO}_2$  (90%)

Neutron flux:  $3 \times 10^{14} \text{ n/s} \cdot \text{cm}^2$ ,  $E < 0.6 \text{ eV}$

Neutron flux:  $2 \times 10^{14} \text{ n/s} \cdot \text{cm}^2$ ,  $E > 0.1 \text{ MeV}$

Vertical channels: 2 channels for samples irradiation

Horizontal channels: 6 radial and 2 tangential

**Ch3:** D3 Medium resolution powder diffractometer

**Ch7:** D7a High resolution powder diffractometer

**Ch7:** D7b 2-axis single crystal diffractometer

M.N. Mikheev Institute of metal physics, Ekaterinburg, Russia

# AONSA Business

## 1. AONSA Young Research Fellow

- Due to the COVID-19 impact, facilities (ANSTO, CSNS, J-PARC) postpone to accept 2020/2021 fellows.
- For nomination of 2022 period:
  - ANSTO: 0 (if there will be a cancel, ANSTO accept 1)
  - J-PARC: 1
  - CSNS: 0 or 1
  - CARR: 1 for Residual Stress Diffractometer.
- We should watch the situation of the COVID-19 impact. The above may change due to the change of the COVID-19 impact.



## 2. AONSA School

- The school is plane to be held in Oct 25-31,2021 at CSNS. But...
- It is difficult to hold neutron school this year due to the COVID-19 impact.
- FDM propose to postpone to 2022 (hosted by CSNS).
- When it will be postponed and CSNS will host again in 2022, CSNS will consider alternative option (on-line school in 2022) also for the safety.

# Discussion

## 1. International Facility Directors Meeting (IFDM)

- IFDM was initiated in the last year (the COVID-19 impact) and held twice in 2020. Sharing the information and discussing possible collaborations etc. The next will be held in August 22nd.
- Initial step: We will report the activities of AONSA-FDM at the IFDM. And, we will have report of IFDM at the next AONSA FDM.
- Further inputs and possible more tight communications will be considered if it will be necessary.

## 2. Follow actions from AOCNS instrument scientist workshops (ISW)

- Summary report of the last ISW (@Kenting AOCNS) was shown.
- AONSA FD's should ensure that the suggested actions from the report are discussed and if agreed - endorse them to be undertaken. Each of the FD's should then be held accountable to ensuring their facility participates and assists in the delivery.

# Suggestions from the last ISW meetings

## [SANS]

- Considering deuteration lab.
- Sharing of AONSA schools presentation files
- Exchanging staff between facilities
- Standardizations & benchmarking

## [Reflectometry]

- Sharing drawings of SE
- Sharing presentation files on AONSA webpage

## [Diffraction]

- Enhancing ability of data handling software to remove bottleneck
- Adopting Mantid and joining this project

## [Spectroscopy]

- Exchange of scientists
- Considering how to manage 24 hour operation support (including weekends and holidays)
- Issues in returning samples to users
- Enhancing computing environments
- He-3 shortage

### 3. Discussion on International Software Collaboration - specifically Mantid

- Current situation of Mantid project was reported by Jamie Schulz.
- Mantid was originally developed for TOF instruments mainly at Spallation Sources. Since then Mantid has matured and is now being adopted by reactor sources - ILL is moving to it and ANSTO is too. CSNS is also a partner. J-PARC is also considering.

# Next Chair

No.	Location	Date	Chair
1st	Bandung, Indonesia	19th May, 2011	Shane Kennedy (OPAL)
2nd	Tsukuba, Japan	20th November, 2011	Rob Robinson (OPAL)
3rd	Kajang, Malaysia	21st May, 2012	Kye-Hong Lee (HANARO)
4th	Beijing, China	26th October, 2012	Kye-Hong Lee (HANARO)
5th	Tokai, Japan	19th June, 2013	Kye-Hong Lee (HANARO)
6th	Guangdong, China	16th November, 2013	Kye-Hong Lee (HANARO)
7th	Daejeon, Korea	20th February, 2014	Mitsu Shibayama (JRR3)
8th	Serpong, Indonesia	15th, October, 2014	Mitsu Shibayama (JRR3)
9th	Sydney, Australia	19th July, 2015	Yuntao Liu (CARR/CIAE)
10th	Tokai, Japan	3rd December, 2015	Mitsu Shibayama (JRR3)
11th	Guangdong, China	30th May, 2016	Yuntao Liu (CARR/CIAE)
12th	Mumbai , India	17th November, 2016	Jamie Schulz (OPAL)
13th	Daejeon, Korea	8th July, 2017	Jamie Schulz (OPAL)
14th	Bangkok, Thailand	25th November, 2017	Toshi Kanaya (J-PARC MLF)
15th	Malaysia	24th June, 2018	Toshi Kanaya (J-PARC MLF)
16th	Sydney, Australia	16th November, 2018	Sungil Park (HANARO)
17th	Mianyang, China	24th May, 2019	Sungil Park (HANARO)
18th	Kenting, Taiwan	24th May, 2019	Sungil Park (HANARO)/Fangwei Wang (CSNS)
19th	Zoom	19th June, 2020	Fangwei Wang (CSNS)
20th	Zoom	27th November, 2020	Kenji Nakajima (J-PARC MLF)
21th	Zoom	25th June, 2021	Kenji Nakajima (JRR-3/J-PARC MLF)

- Jamie Schulz will act the next chair



# Australian Neutron Beam Users' Group

## Bringing together Australia and New Zealand's neutron beam research community

Report to AONSA

Yun Liu (ANBUG President)  
Tracy Rushmer (past ANBUG President)

Sydney, Australia (via Zoom), June 25-26, 2021



# 2021-2022 ANBUG executive committee



**President**  
Prof Yun Liu  
ANU



**Past President**  
Prof Tracy Rushmer  
Macquarie University



**Vice-President**  
A/Prof Chris Wensrich,  
University of Newcastle

- Management
- Regular EC meeting
- Active actions on events, policy and support for users
- Working closely with ACNS/AINSE.
- ANBUG membership has increased to ~330 members
- **Rich advices received from Past President**
- **A very active team, especially these ECR EC members.**



**Treasurer**  
Dr David Cortie,  
ANSTO/UoW



**Secretary**  
Dr Leonie van't Hag  
Monash University



**Website and Comms**  
Dr. Karyn Jarvis  
Swinburne University



**ECR member**  
Dr Teng Lu  
ANU



**NZ Member**  
Dr Ben Mallett  
University of Auckland

# ANBUG's actions in first half 2021



## EVENTS:

- **ANBUG Lecture Hall:** 1. Reactor & Reactor Physics - Online, June 2021
- ANBUG proposal writing **workshop** (double blind review) – Online, September 2021
- The biennial ANSTO user meeting (Neutron & Synchrotron) – Online, November 2021.

## AWARENESS:

- Twitter: ANBUGneutron ( $\approx$ 400 followers)
- ANBUG email list/Newsletter ( $\approx$ 330)
- ACNS Scatter Maters
- ANBUG quarterly update – Call for user success

## AWARDS AND RECOGNITION:

- Prize committee being assembled to determine prize winner presented at ANSTO user meeting. Call for nominations will go out in July
- New award to recognize the technical support benefiting broad user cohort

# Working group to organise Lecture Hall and workshop for users



**Vice-President**  
A/Prof Chris Wensrich,  
University of Newcastle



**Treasurer**  
Dr David Cortie,  
ANSTO



**NZ Member**  
Dr Ben Mallett  
University of Auckland



**ECR member**  
Dr Teng Lu  
ANU

## Routine action

- Identify the topics
- Identify the speakers and discuss the lecturing content
- Coordinate events

# ANSTO AUM 2021



## Involvement in organising committee and program committee



Co-chair program committee  
on behalf of ANBUG



**Vice-President**  
A/Prof Chris Wensrich,  
University of Newcastle



Dr Shinji Kihara (ECR)  
University of Auckland  
New Zealand



# ANBUG's actions in first half 2021



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**Secretary**  
Dr Leonie van't Hag  
Monash University



**Website and Comms**  
Dr. Karyn Jarvis  
Swinburne University

## AWARDS AND RECOGNITION:

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- New award to recognize the technical support benefiting broad user cohort

**ANBUG Technical & Service Award:** *This is a new award to recognise beamline scientists or university technical staff for their important role in supporting neutron experiments.*

# ANBUG's actions in first half 2021



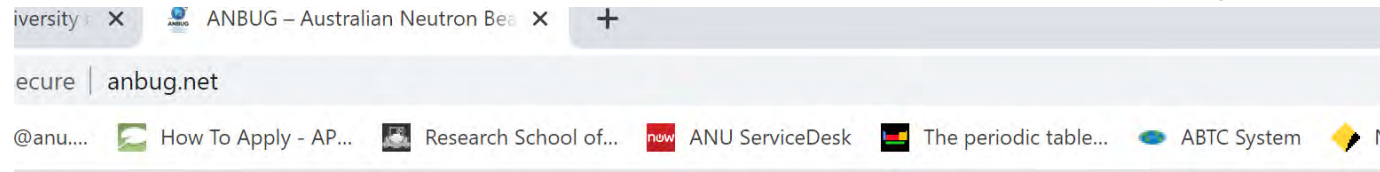
## **POLICY AND GOVERNENCY:**

- Involvement in the ACNS advisory committee to represent ANBUG.
- Various applications /requests for funding support to the ANBUG users, especially students and ECRs.
- Promoting women in Neutron Scattering

## **USER SURVEY:**

- User survey has been developed in conjunction with ACNS as part of ANSTO's decadal plan
- Feedback is being sought on user experience and future instruments, resolution & capabilities
- Currently open until 4th of July 2021

# ANBUG user survey



Dr. Karyn Jarvis



Dr Leonie van't Hag  
Monash University

JUNE 7, 2021

## Neutron User Survey

**2021 is an important year** for ANBUG users as the federal government will develop the Australian Government Research Infrastructure Roadmap, ANSTO will develop its Decadal Plan and ACNS is to start up its expansion planning on the Second Guide Hall. Feedback from our ANBUG members is extremely valuable! It is our opportunity to shape Australia's future research facility that can provide sustainable and state-of-the-art support for our research. Because of this, **the ANBUG Executive Committee encourages all members and people who care and interested Australian Neutron Science and Technology to participate in this 10 -15 minutes survey.**

The survey can be done through the link below

<https://www.surveymonkey.com/r/ZD5ZDSB>

**It will be open for 4 weeks until Friday 2<sup>nd</sup> July.**

Se

NEW

ACN  
June'

ACN  
June'

Neu  
June'

ACN  
April'

Aust  
Febru

Eure  
Janua

Upd:  
Janua



Jamie Schulz, ACNS



Richard Mole, ACNS

# ANBUG user survey



## ANBUG Survey

General Questions

## ANBUG Survey

Current user experience and participation:

## ANBUG Survey

ANBUG

## ANBUG Survey

Use of International Facilities

## ANBUG Survey

Additional Future Capabilities



# Report from China Neutron Scattering Society

*Hesheng CHEN*

*AONSA EC Meeting June 26, 2021*

# Outline

- 1 CNSS activities overview**
- 2 Status of CARR,CMRR and CSNS**
- 3 Summary**

# Outline

- 1 CNSS activities overview**
- 2 Status of CARR,CMRR and CSNS**
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# Neutron Scattering Facilities in China

User community > 2400 and expands quickly



All facilities  
keep normal  
operation!

# CNSS focus and plan for 2021

- **Coordination of the research and application of neutron scattering in China**
  - **Develop neutron scattering technology**
  - **Coordinate the spectrometer development and running plans of 3 facilities**
  - **Promote the output of scientific results**
  - **Training users and students**
  - **Promote International cooperation and exchanges .....**
- **Promotion of the work of groups for major fields of NS application**
  - **Promote academic exchanges and cooperation in working groups**
  - **Establish awards to encourage young researchers**
  - **Promote academic exchanges and cooperation in working groups.....**
- **Preparation for international conferences**
  - **Asia-Oceania Conference on Neutron Scattering -2023**
  - **AONSA Neutron School, AONSA Executive Committee Meeting**
  - **The First CSNS International Advisory Committee Review Meeting.....**

# **CNSS working groups to promote the NS technology and application**

## **Established 11 working groups**

**(covering Chinese User Community , included HK and Macao) :**

- **Software and Data Analysis**
- **Neutron Detector**
- **Small Accelerator Neutron Source**
- **Polarization Neutron Technical**
- **Monte Carlo Simulation System for Neutron Transport**
- **Engineering Stress Research**
- **Inorganic Solid Material Characterization**
- **Lithium Battery Technology**
- **Neutron Scattering Standards**
- **Neutron Optics Technology**
- **Deuteration Technology**

# Guangdong-Hong Kong-Macao Joint Laboratory for Neutron Scattering Science and Technology



## 粤港澳中子散射科学技术联合实验室开放课题申请通告

文章来源： | 发布时间：2021-02-07 | 【大 中 小】 【打印】 【关闭】 | 浏览：30

粤港澳中子散射科学技术联合实验室是广东省科技厅批复成立的首批粤港澳联合实验室之由散裂中子源科学中心、东莞理工学院、香港城市大学、澳门大学四方共建，实验室执行“开放、流动、联合、竞争”的机制，坚持面向世界科技前沿、面向经济主战场、面向国家重大需求、面向人民生命健康，瞄准学科前沿、选择特色课题、集限资源开展前沿领域和关键技术的研究，以推动中子散射技术的发展，为物理学、化学化工、材料科学与工程、能源、资源、生命科学等相关学科的研究与发展提供先进的研究平台，带动相关科学技术的推广、转移及应用，同时建立和培养一支优秀学科团队。

在广东省科技厅和东莞市科技局的支持下，本实验室现开始受理中子散射、中子技术及其转化等领域基础与应用基础和成果转化研究项目，特别鼓励与实验室主要研究方向相符的创新研究。请申请人于3月8日前提交申请材料。

### 一、开放课题申请对象

国内（含港澳）各高校、科研机构以及有研发能力的企业在职研究人员，均可向本实验室提出课题申请。申请人须联系实验室人员作为合作者，协助课题实施。

### 二、实验室主要支持以下方向的研究课题：

- 1、利用散裂中子源装置开展中子散射多学科交叉研究与应用。
- 2、开展提升散裂中子源装置性能的关键技术研发、设备研制、实验方法开发等。
- 3、利用散裂中子源及其相关技术开展应用研发和成果转化项目。

### 三、开放课题申请的程序：

- 1、申请者填写开放课题申请书，经所在单位签署意见后寄交本实验室，同时须提交申请书电子版。

- Rely on CSNS, providing an important research platform for the Guangdong-Hong Kong-Macao Greater Bay Area.
- Guangdong-Hong Kong-Macao Joint Laboratory set up an open project for the first time in early 2021, and collected 17 applications for key projects and 35 applications for general projects. Experts are reviewing all applications .



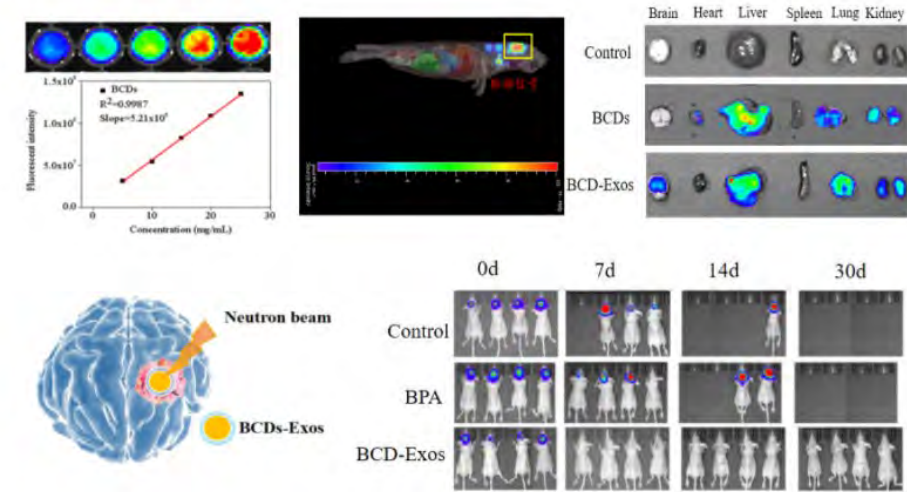
# National Key Research & Development Projects



- On April 6, 2021, the kickoff meeting of "Advanced Polarized Neutron Technology Research and Development Based on 3He polarization", a key project of the National Key Research and Development Projects, was held in the Institute of High Energy Physics, CAS.
- The major issues such as the types and quantity of polarizing neutron equipment and the types of applicable spectrometer were discussed.



# China Builds First Accelerator-based Facility for Boron Neutron Capture Therapy Experiments



Exosome-coated  $^{10}\text{B}$  Carbon Dots for Precise Boron Neutron Capture Therapy in Mouse Model of Glioma *in situ*

- "Boron-containing drugs for BNCT" Xiangshan Science was held in Beijing in Jan. 2021.
- BNCT research group, recently made important progress in the development of nano-drugs for the treatment of malignant glioma. The study, entitled "Exosome-Coated  $^{10}\text{B}$  Carbon Dots for Precise Boron Neutron Capture Therapy in a Mouse Model of Glioma In Situ," was published in *Advanced Functional Materials*.

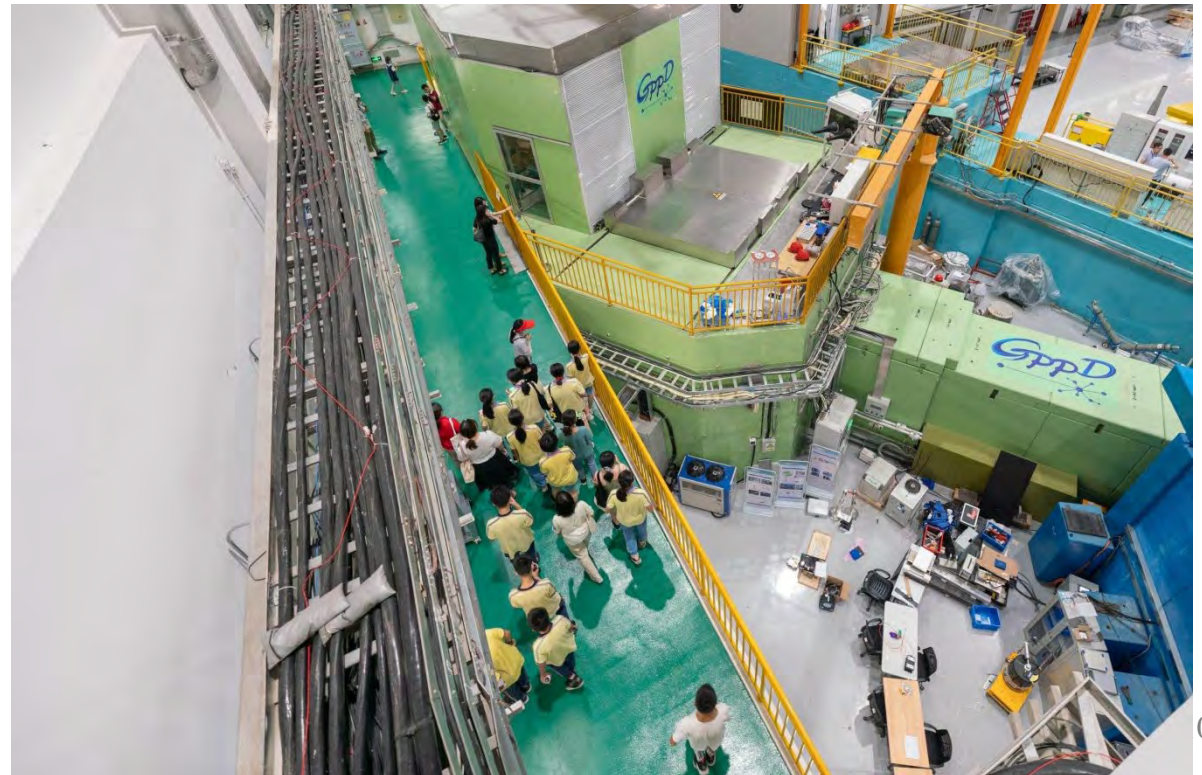


# CSNS Opens Its Door to Public

On 22-23 May , the annual CSNS open day was successfully held at the Dongguan. This two-day event saw more than 4,000 participants from all over the country.



Invited talks given by scientists ranged from the neutron scattering technology, to the topics of synchrotron radiation technology, astrophysics and neutrinos.





# A Consular Delegation Visits CSNS



- On March 25, a special delegation of foreign consular officers and journalists visited CSNS.
- The delegation are interested in cooperating with CSNS, to provide opportunities for scholars from their countries to visit the CSNS and engage in relevant research work.
- The tour is organized by the Foreign Affairs Office of Guangdong. It is expected to boost the international exchanges and cooperations in the future.



# Conferences and Meetings



**9th CNSS @ Dongguan, 2020**



**10th RPNM @ Shanghai, 2021**



**7th Seminar on metal materials @ Zhenjiang, 2021**



**Symposium on development and application of inelastic neutron scattering spectrometer @ Beijing, 2021**



**Symposium on advanced polarized neutron Technology @ Beijing, 2021**

# CMRR- recent activities

## ➤ Seminar of “Investigation and application of neutron science”

- ✓ The seminar will be hold from July 5<sup>th</sup> to 9<sup>th</sup>, 2021, hosted by CAEP, Mianyang;
- ✓ Lectures will be given by renowned experts in neutron scattering from Tsinghua University, Peking University, CAS, City University of Hong Kong, CAEP, etc.
- ✓ The main topics include, Requirement and applications of neutron scattering in frontier science, advanced manufacture, aviation, etc.; Current status of nuclear medicine in China; Application and progress of three neutron sources in China.

### 一、研修内容

1. 中国散裂中子源的建设与应用
2. 工程服役安全性与残余应力问题对中子技术的需求
3. 中子散射：前沿科学及国家重大需求的多学科研究平台
4. 中子散射在先进制造中的应用
5. 中子无损检测在航空发动机领域的需求与应用
6. 新型特种堆研究进展
7. 材料辐照后性能研究
8. CARR 堆的中子散射多学科应用
9. 上海交大、中物院共建中子平台进展与应用
10. 中国核医学发展现状
11. CMRR 中子科学平台应用进展



12. 基于  $^3\text{He}$  的中子极化技术及其应用

### 二、授课专家

- |         |               |              |
|---------|---------------|--------------|
| 1. 陈和生  | 研究员/中科院院士     | 中国科学院高能物理研究所 |
| 2. 吕坚   | 教授/法国 NATF 院士 | 香港城市大学       |
| 3. 王芳卫  | 研究员           | 中科院物理所       |
| 4. 王沿东  | 教授            | 北京科技大学       |
| 5. 郭广平  | 研究员           | 中国航发航空材料研究院  |
| 6. 石磊   | 教授            | 清华大学         |
| 7. 段慧玲  | 教授            | 北京大学         |
| 8. 刘蕴涛  | 研究员           | 中国原子能科学研究院   |
| 9. 钟圣怡  | 教授            | 上海交通大学       |
| 10. 李思进 | 教授            | 山西医科大学       |
| 11. 彭述明 | 研究员           | 中物院核物理与化学研究所 |
| 12. 闫海洋 | 研究员           | 中物院核物理与化学研究所 |

### 三、研修时间、地点

研修时间：2021 年 7 月 5 日-9 日，7 月 5 日报到。

研修及报到地点：四川省绵阳国际会议中心科发铂铂酒店（地址：绵阳市涪城区绵兴西路 112 号，酒店联系电话：18284992249）

# Outline

- 1 **CNSS activities overview**
- 2 **Status of CARR,CMRR and CSNS**
- 3 **Summary**



# China Advanced Research Reactor(CARR) Instrument Progress



**Engineering Instrument**



**Single crystal  
blade of engine**

**Small gauge volume  
 $0.3 \times 0.3 \times 0.3 \text{ mm}^3$**

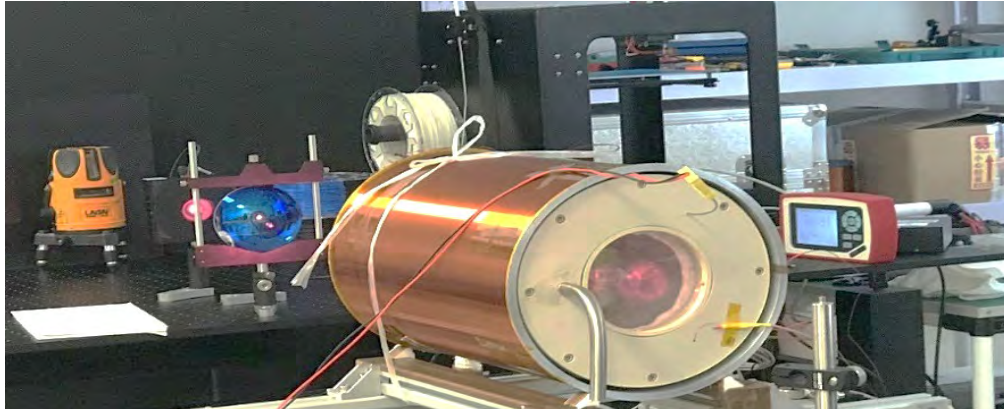


**7XXX  
Aluminum alloy**

**Thick component  
200 mm in thickness**



# CARR Equipment Development



**Neutron Polarization Test System  
applied in Cold Triple-axis spectrometer**



**Double Focusing Silicon Monochromator  
applied in HIPD and RSD**



**Neutron Radial Collimator  
applied in RSD**

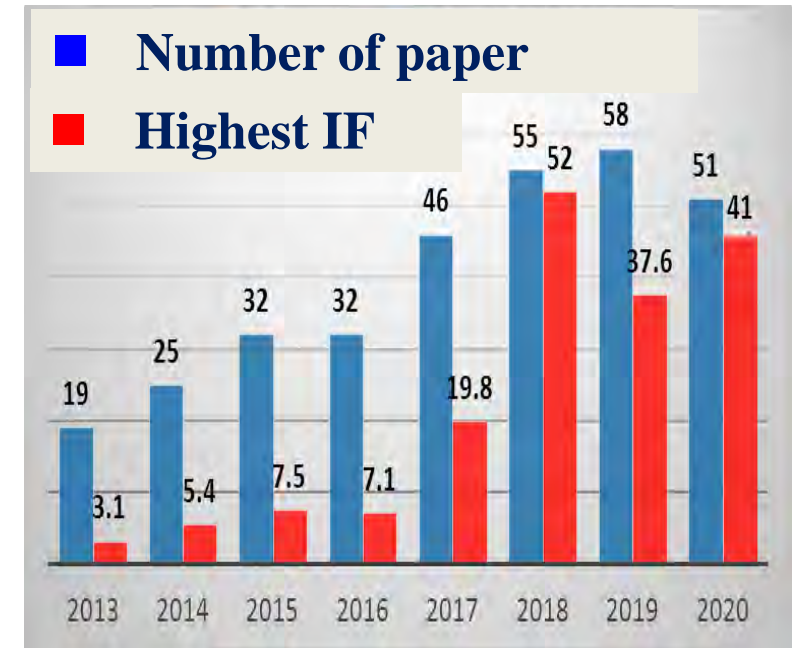
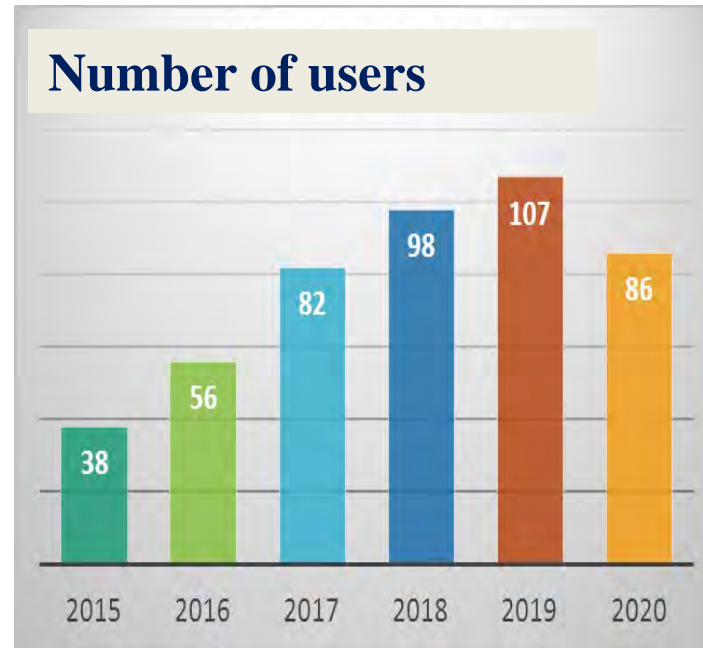
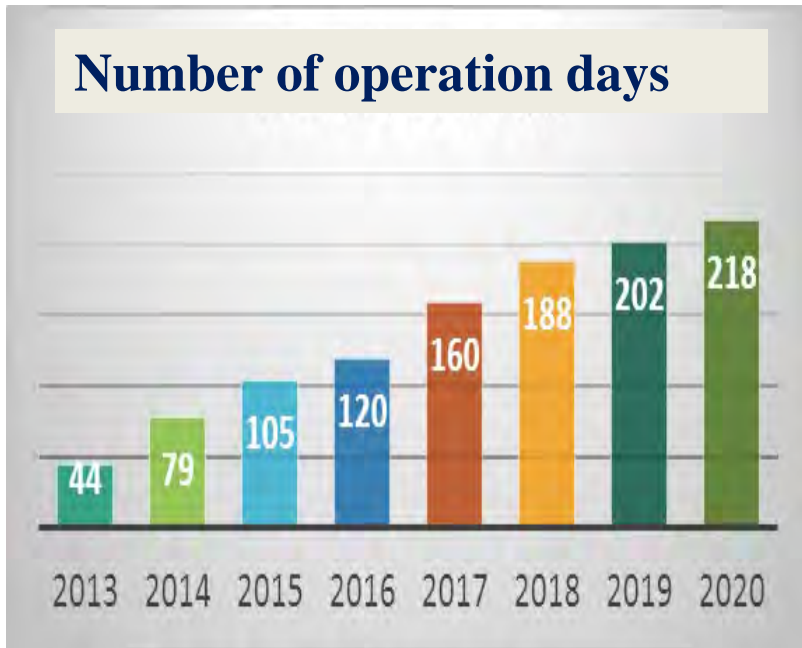


**Double Crystal Graphite Monochromator  
applied in Cold Neutron Diffractometer**



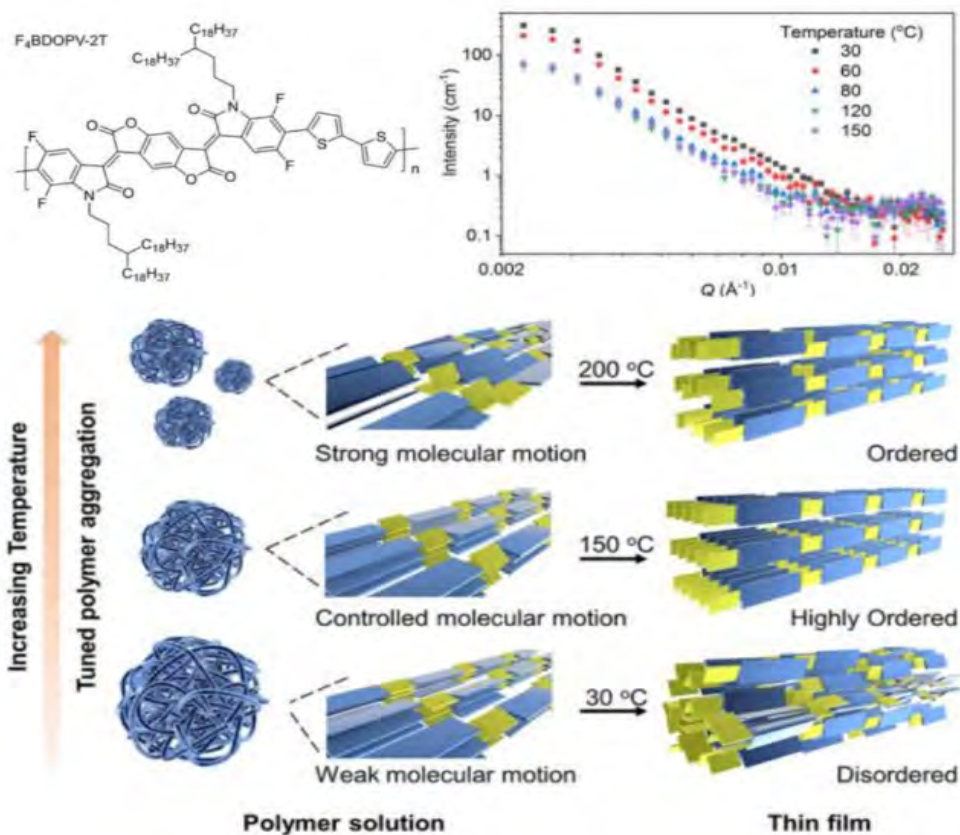
# China Mianyang Research Reactor- Operation

- The users and publications increase every year. While the data of 2020 were somehow affected by the epidemic.
- In **2021**, CMRR is planned to operate more than 180 days. Until May, the No. of users is **37**, and **25** Papers are published.



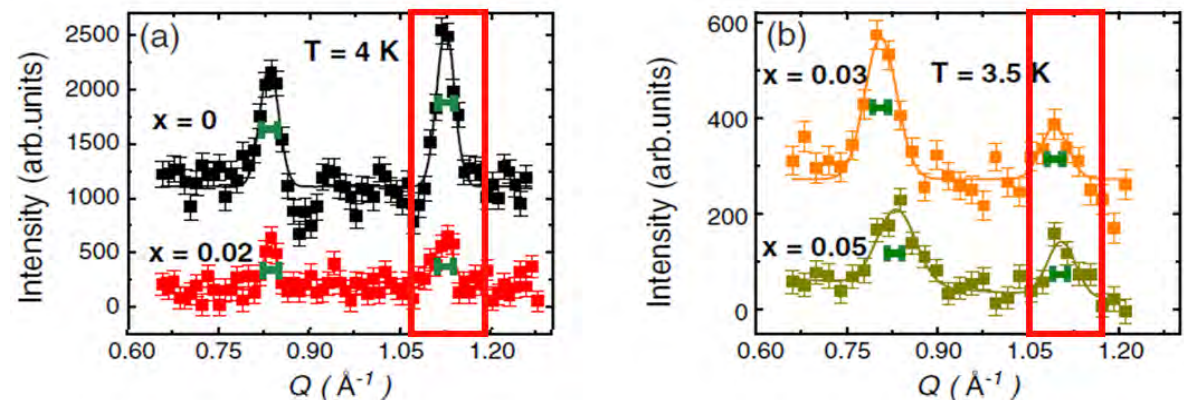
# CMRR- Typical applications and scientific outputs

➤ Notable discoveries were obtained in the areas of soft matter, physics, nano-composites, etc.



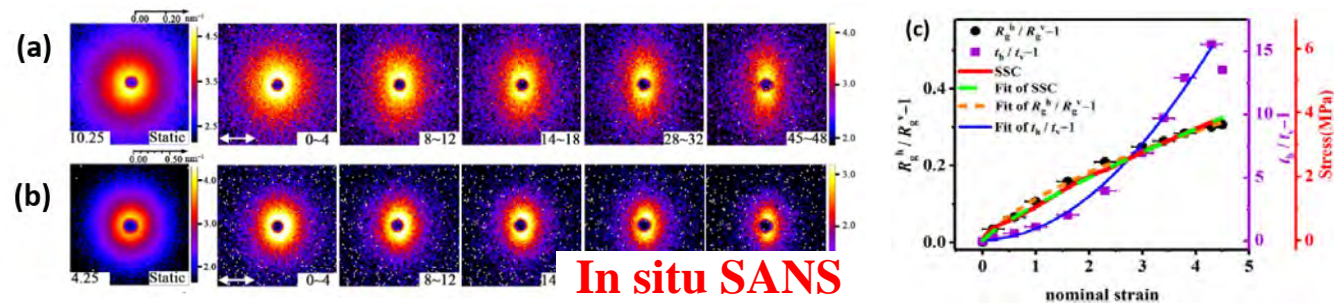
## Aggregation behavior of photoelectric materials

Z. - F. Yao, L. Zou\*, J. Pei\* et al. *Angew. Chem. Int. Ed.* 2020, 59, 17467



## Extreme suppression of antiferromagnetic order and critical scaling in a 2D random quantum magnet

Wenshan Hong, et al, *Phys. Rev. Lett.* 126.037201,2021



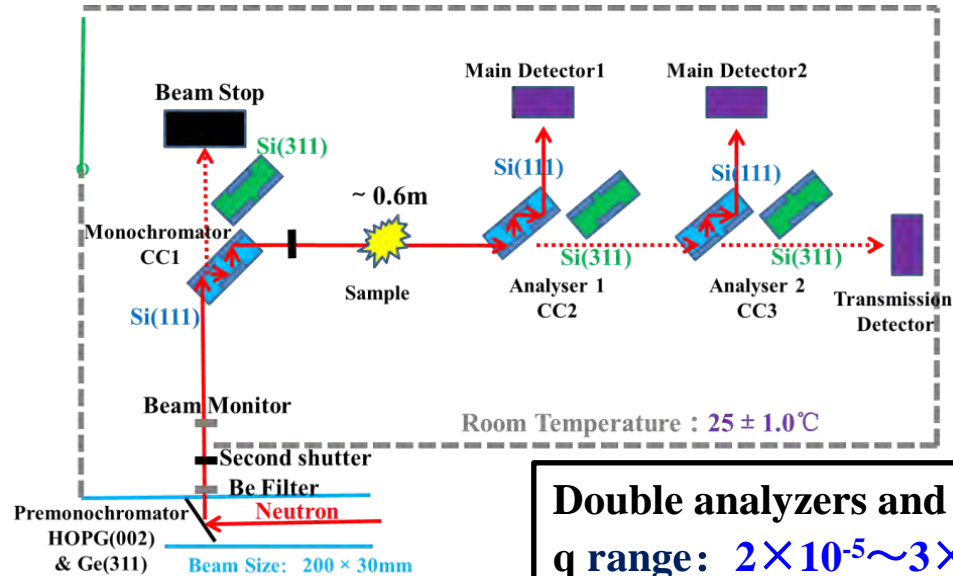
## Unveiling the reinforcement of silicone rubber with labeling

Y Shui, GA Sun\*, D Liu\* et al. *Composites Communications*, 23 (2021) 100547

# CMRR- Capability improvement on neutron science

## ➤ Newly established ultra-small angle neutron scattering spectrometer

- ✓ The **USANS** is a Bense-Hart type one, equipped with double analyzers and double detectors;
- ✓ All the hardware were installed, and the debugging were finished. The USANS is expected to be put into operation at the end of 2021.



**Double analyzers and double detectors**

**q range:  $2 \times 10^{-5} \sim 3 \times 10^{-3} \text{ \AA}^{-1}$**

**Scale range: 200nm ~ 20mm**

**Wavelength: 2.37 Å and 4.74 Å**



**The USANS spectrometer**



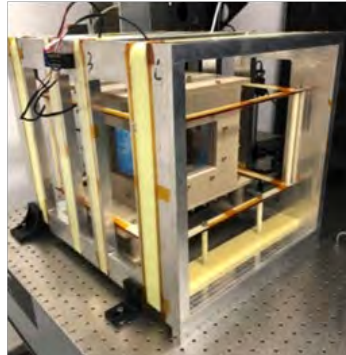
# CMRR- Capability improvement on neutron science

## ➤ Established a polarized neutron platform

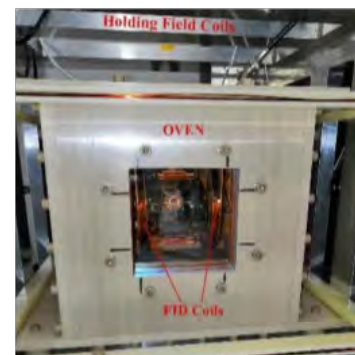
- ✓ A  $^3\text{He}$  system for polarized neutrons has developed. Including four components: laser pumping system, magnetic field, Polarimetry, and  $^3\text{He}$  cell fabrication;
- ✓ On April 26<sup>th</sup>, 2021, the polarized neutron signal was observed on the **Spin Echo Small-Angle Neutron Scattering (SESANS)** spectrometer for the first time.



**Laser pumping system**



**Magnetic field**



**Polarimetry**



**$^3\text{He}$  cell fabrication**

W. Ji, Y. Chen, C. Fu, et al, *Physical Review Letters*, 2018, 121(26): 261803

S. Yan, M.F. Zhang, W.C. Guo, et al, *Science China* 2019, 62(10)

# CMRR- Capability improvement on neutron science

## ➤ Newly established SESANS spectrometer

- ✓ The construction of **SESANS** is finished, the components including guides, focusing monochromator, polarizer, slit, V-coil, main coils,  $\pi$ , monitors, etc;
- ✓ The debugging of SESANS are now conducting. The spectrometer is expected to be put into operation at the end of 2021.



Spin Echo Small-Angle Neutron Scattering

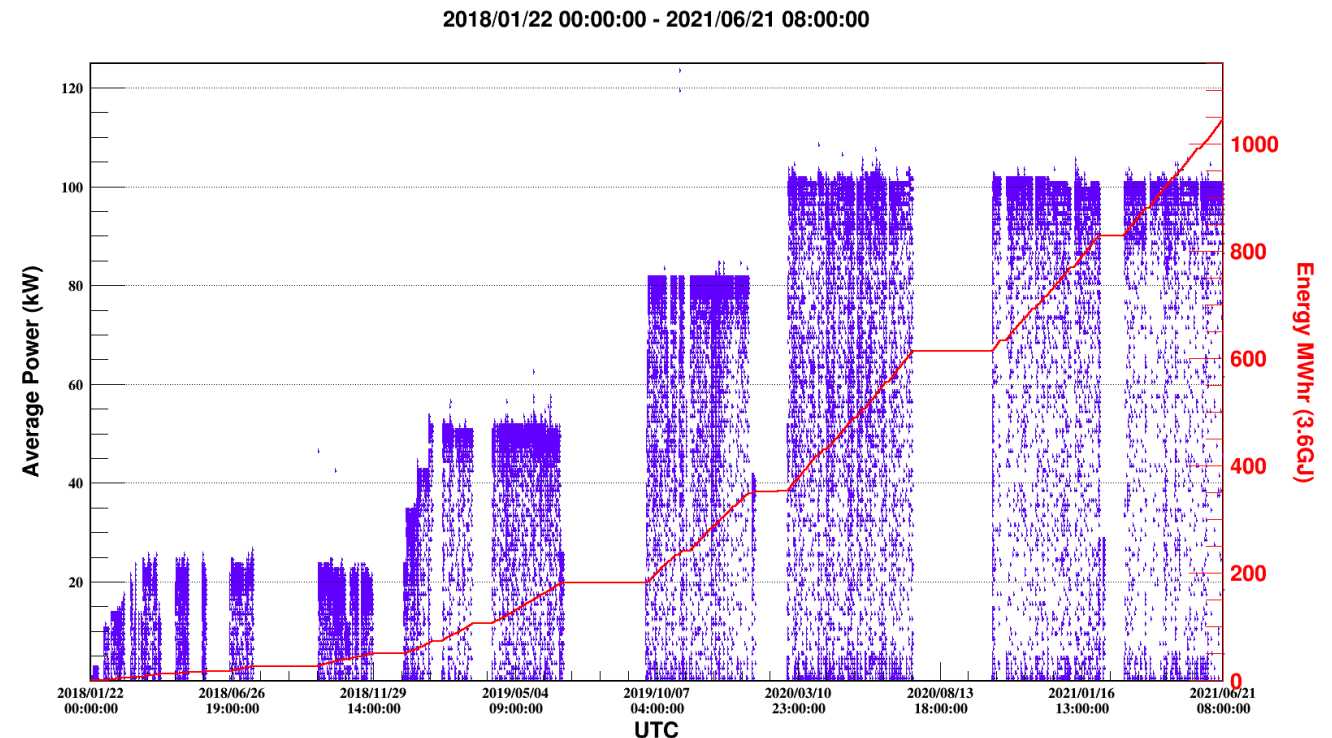
$\pi$  flipper : **Permalloy magnetization thin film**; Spin Echo length: **2  $\mu\text{m}$** ;



# China Spallation Neutron Source (CSNS)

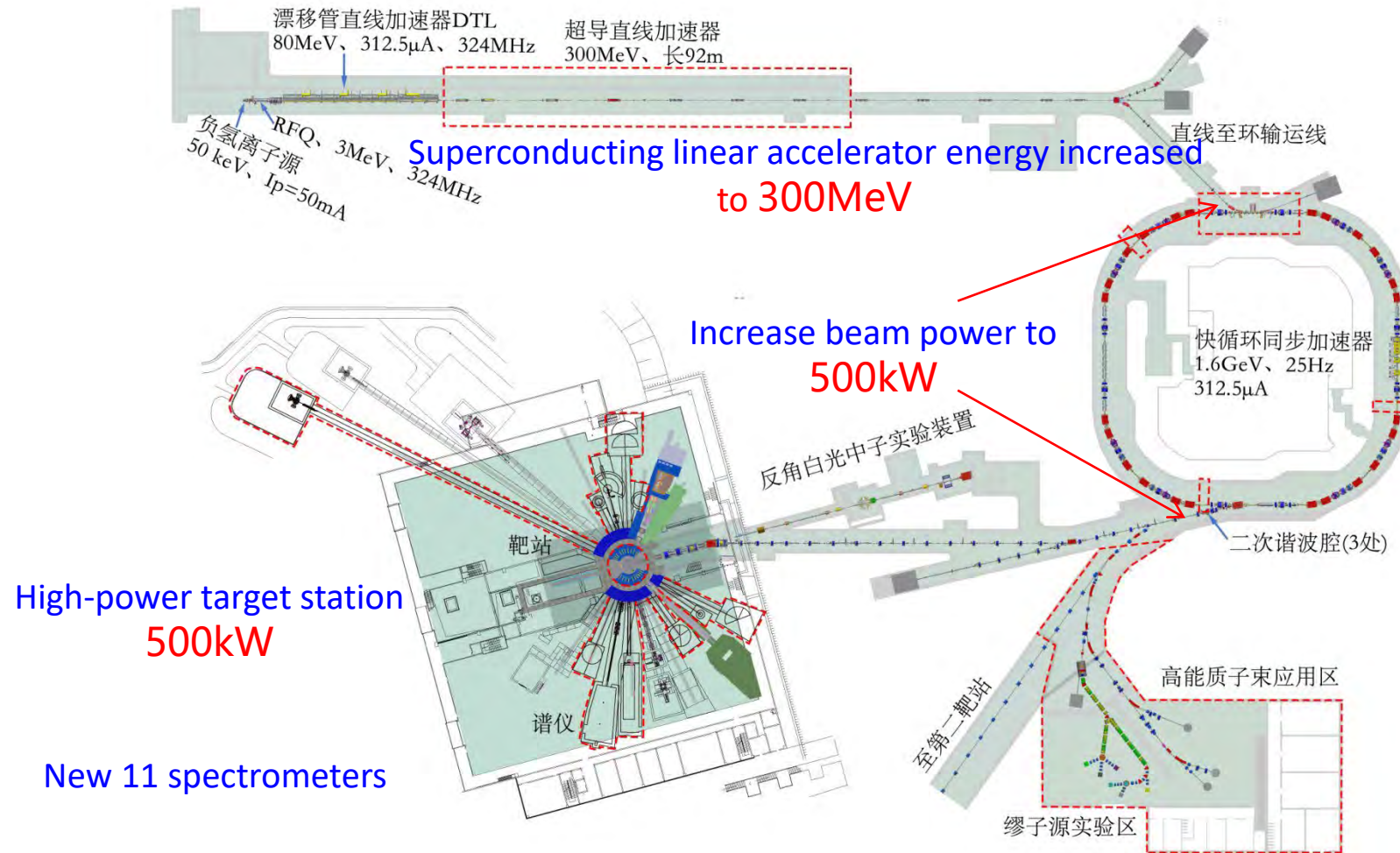


From Oct. 2020 to Jun. 2021, the accelerator has been operating smoothly at 100kW. The beam availability reached 94% during the target beam time.

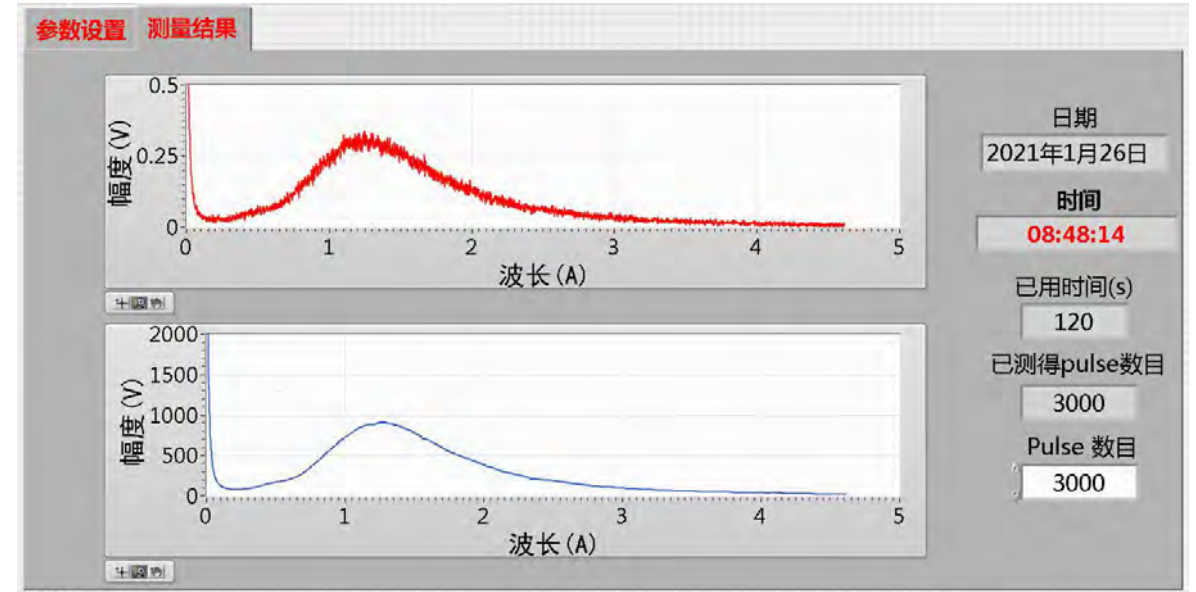




# CSNS Phase II Project has been approved to be included in the 14th 5-Year Plan of China

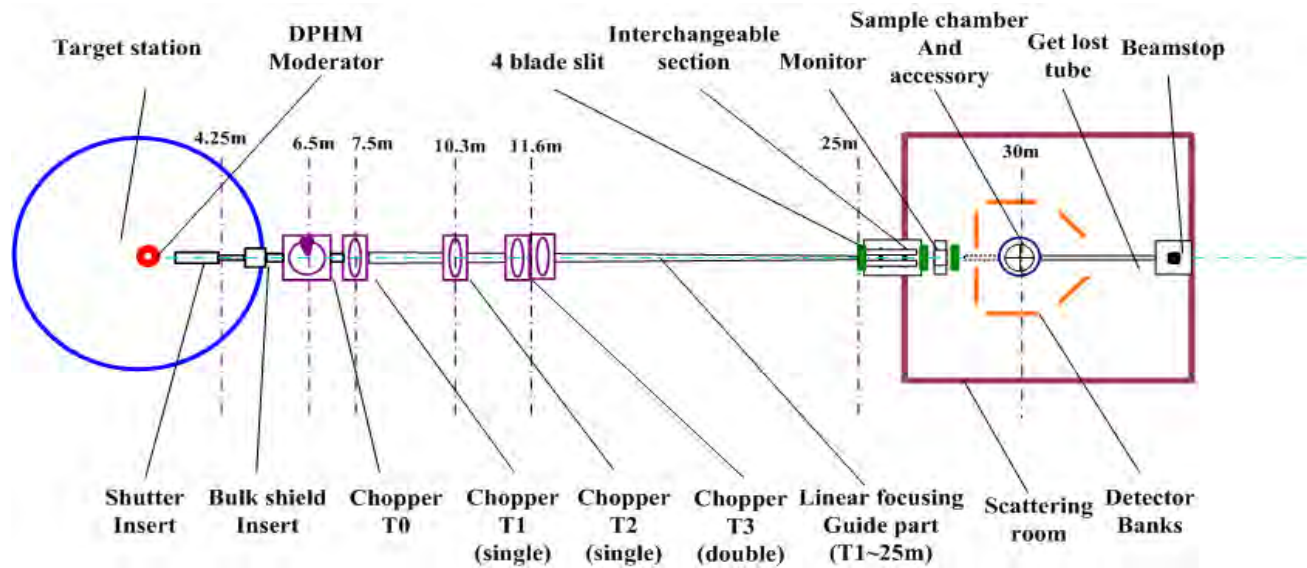


# CSNS Finished Construction of First User Instrument MPI

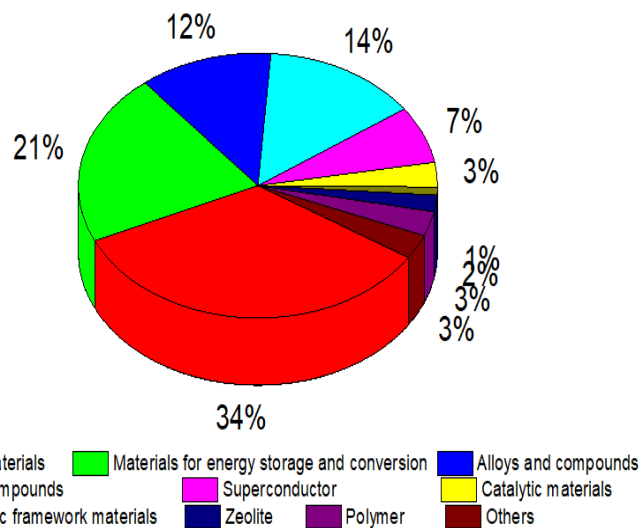


- ◆ The coronavirus didn't slow CSNS's pace in building its user instruments. On Jan. 26, the Multi-Physics Instrument (MPI) received the neutron beam from the target station, marking the instrument's successful completion after two years of construction.
- ◆ MPI is CSNS's first user instrument and was built in cooperation with Dongguan University of Technology and the City University of Hong Kong.
- ◆ MPI is also the first neutron total scattering instrument in China.

# GPPD



<b>Moderator</b>	DPHM (20 K)	
<b>Bandwidth(<math>\Delta\lambda</math>)</b>	4.8 Å	
<b>Max. Beam Size</b>	40(h) × 20(w) mm	
<b>Best Resolution(<math>\Delta d/d</math>)</b>	0.2 % at $2\theta=150^\circ$	
<b>Guide</b>	Taper focus, m=3	
<b>Source to sample distance L1</b>	30 m	
<b>Sample-detector distance L<sub>2</sub></b>	$2\theta=150^\circ$	1.4 m
	$2\theta=90^\circ$	2.0 m
	$2\theta=15^\circ$	2.0 m

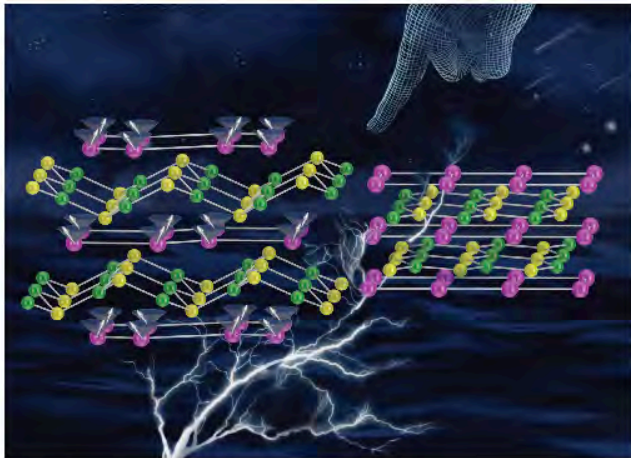


By June 2021, GPPD has published 42 papers in many top journals, including Science, Nature Nanotechnology, Nature Communications, Advanced Materials, Materials Horizons, Science China Materials, CCS, Journal of the American Chemical Society, etc.



# GPPD-Magnetic materials research In-house research

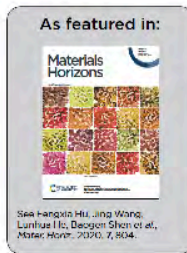
- Through cooperation with CSNS and NIST, the research group of Prof. Fengxia Hu and Academician Baogen Shen successfully analyzed the incommensurate cone-spiral magnetic magnetic in  $\text{Mn}_{0.87}\text{Fe}_{0.13}\text{NiGe}$  alloy. By utilizing the large lattice distortion and constructed texture caused by incommensurate cone-spiral magnetic ordering, giant NTE exceeding average crystallographical contribution has been realized.
- The incommensurate magnetic structure is the first one that was accurately detected in CSNS. This work also verifies the reliability and important value of the GPPD.



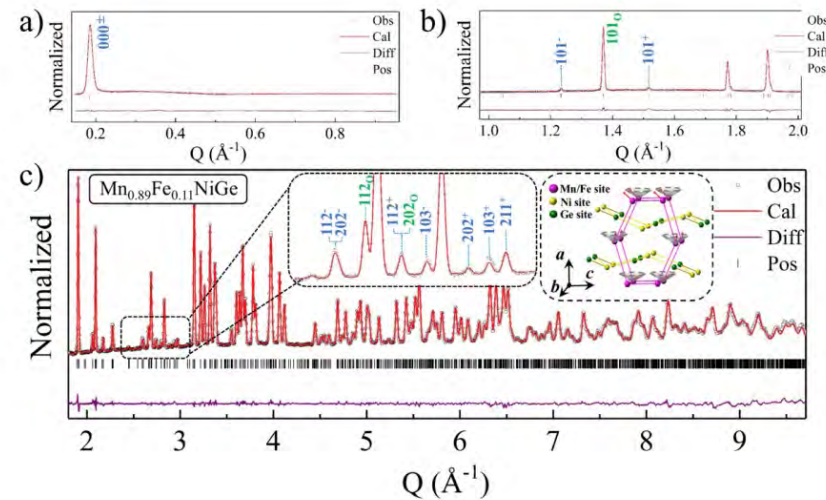
Showcasing research from Professors Fengxia Hu, Lunhua He, Baogen Shen and Dr Jing Wang at the Institute of Physics, Chinese Academy of Sciences, P. R. China.

Cone-spiral magnetic ordering dominated lattice distortion and giant negative thermal expansion in Fe-doped MnNiGe compounds

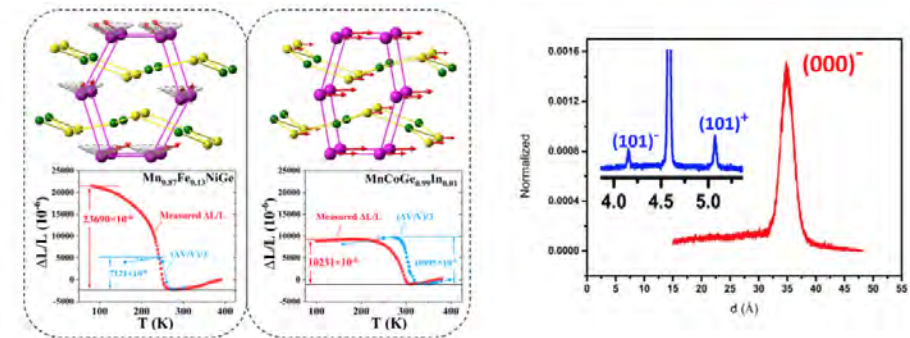
Negative thermal expansion (NTE) has emerged as a topic of intense research. By utilizing large lattice distortion caused by cone-spiral magnetic ordering and the induced texture of local, giant NTE exceeding the average crystallographical contribution has been achieved. This work provides a new strategy for exploring adjustable NTE behaviour.



rsc.li/materials-horizons  
 #additionality number 327563



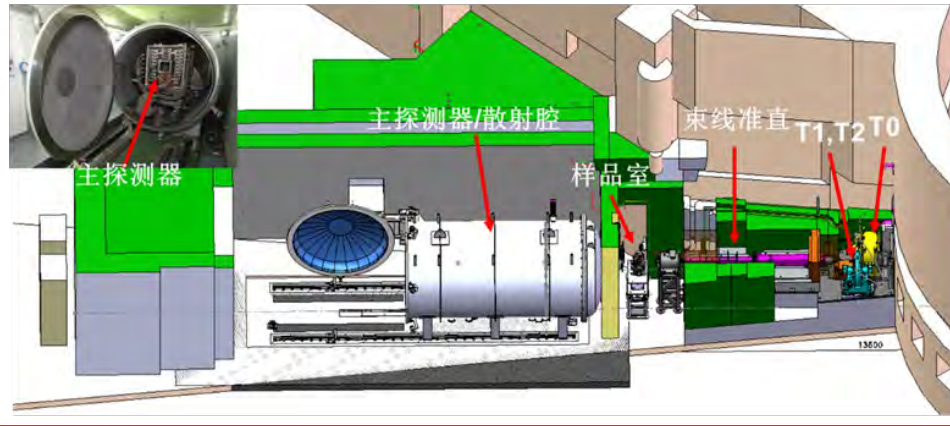
The refinement results of NPD data from GPPD (CSNS)



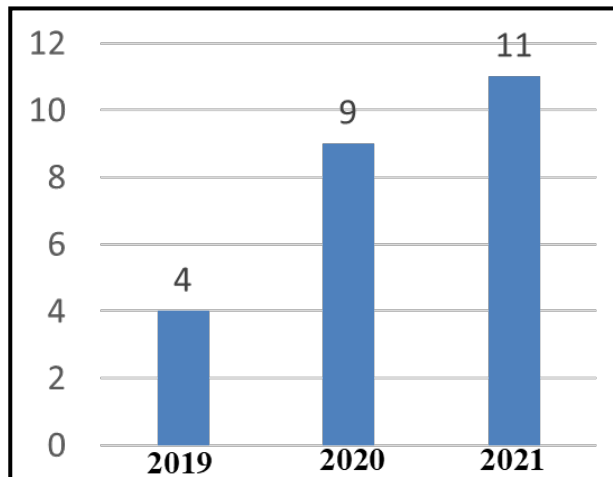
The incommensurate cone-spiral magnetic structure and the related negative thermal expansion behaviour.

**Feiran Shen, Fengxia Hu\*, Lunhua He\*, Tianjiao Liang, Baogen Shen\***  
**Institute of Physics, Chinese Academy of Sciences; China Spallation Neutron Source**

## 小角中子散射谱仪 Small Angle Neutron Scattering



## Publication of SANS



## Key Parameters

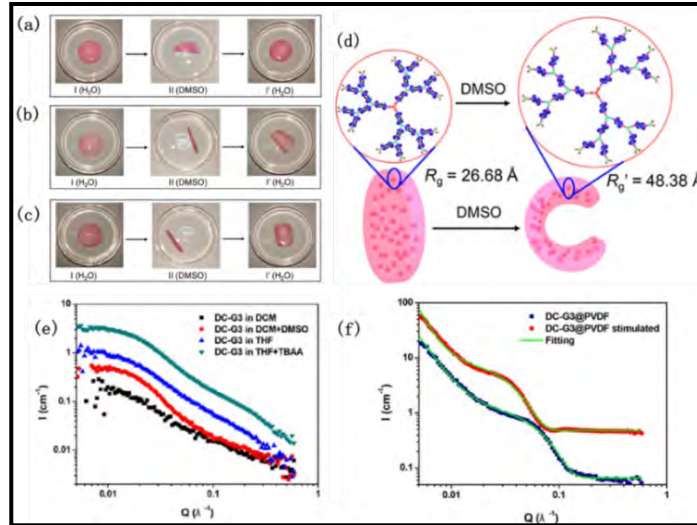
Incident Neutron Wavelength	0.5~12Å
Q-range (Sample-Detector Distance: 2~4m)	$Q_{\min} = 0.005\text{\AA}^{-1}$ ; $Q_{\max} = 1.4\text{\AA}^{-1}$
Q-resolution	~35% for $Q_{\min}$
Neutron Flux @ Sample Position (100kW)	$\sim 6 \times 10^6 \text{ n/cm}^2/\text{s}$
Detector Space Resolution	8mm ( $^3\text{He}$ LPSD)
Detector Area	1m*1m
Sample Size	> 8 mm



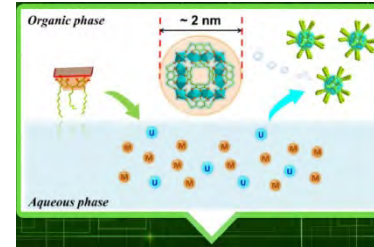
# SANS—Soft Matters

## Muscle-like Motions of Daisy Chain Dendrimers

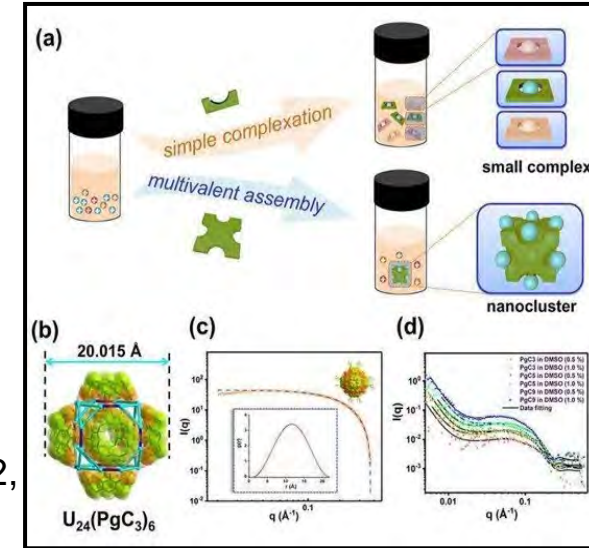
- [1] J. Am. Chem. Soc. 2020, 142, 18, 8473–8482;  
 [2] Giant, 2020, 2, 100020



## Actinide nano-extraction

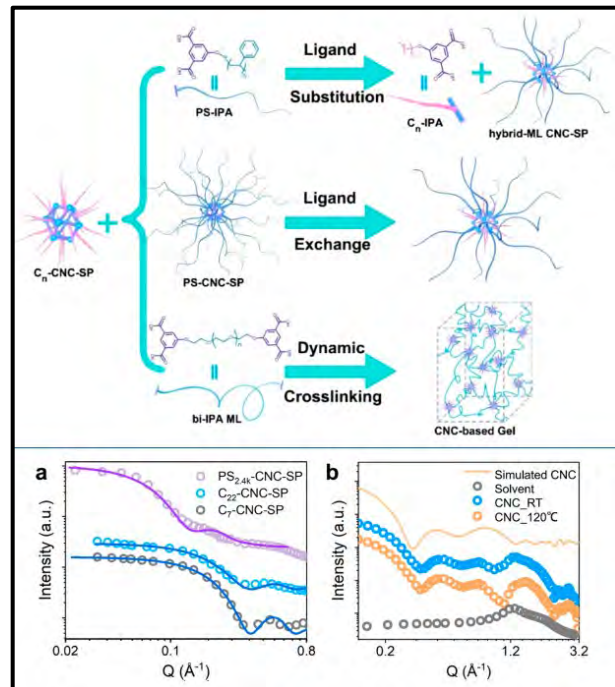
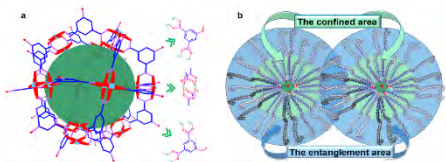


- J. Am. Chem. Soc. 2020, 142, 39, 16538–16545

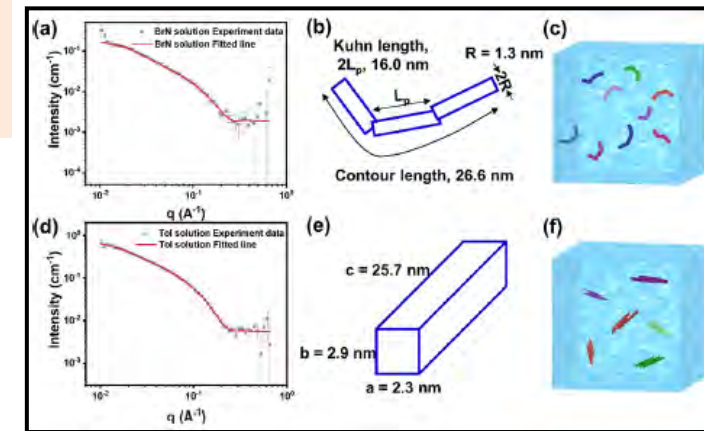
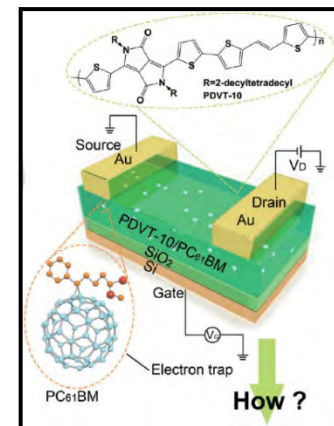


- CCS Chem. 2021, 3, 1328–1340

## Hierarchical structures of Metal-Organic Polyhedron nanocomposites



## Molecular-structure of conductive polymer

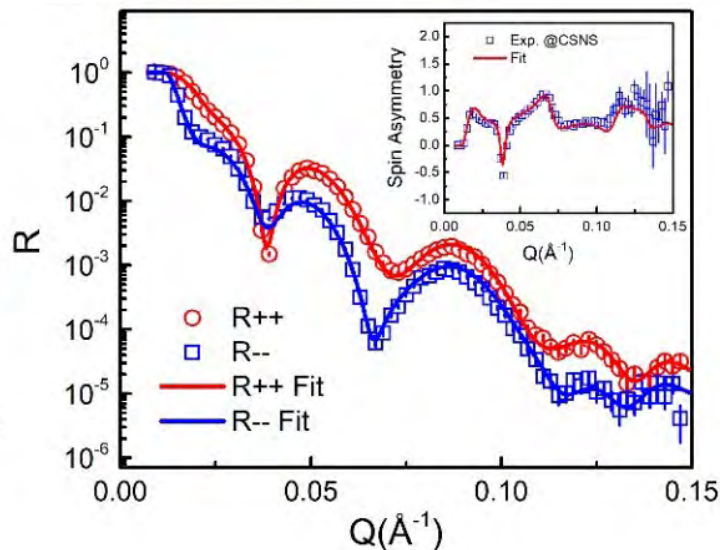
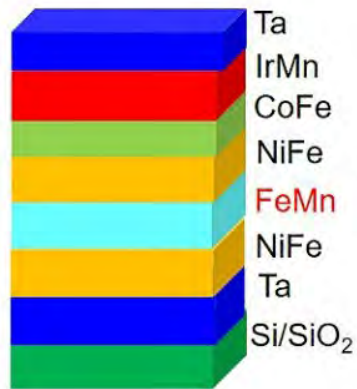


- [1] Angew. Chem. Int. Ed., 58, 17412, 2019;  
 [2] Angew. Chem. Int. Ed. 10.1002/anie.202013361  
 [3] J. Phys. Chem. Lett. 2021, 12, 5395–5403

- [1] Macromolecules 2021, 54, 2143–2154  
 [2] J. Mater. Chem. C, 2021, 9, 4854–4862  
 [3] Chem, 2021, 7, 1–13



# MR



## Applications:

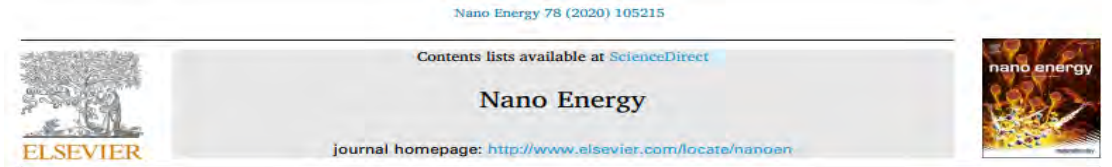
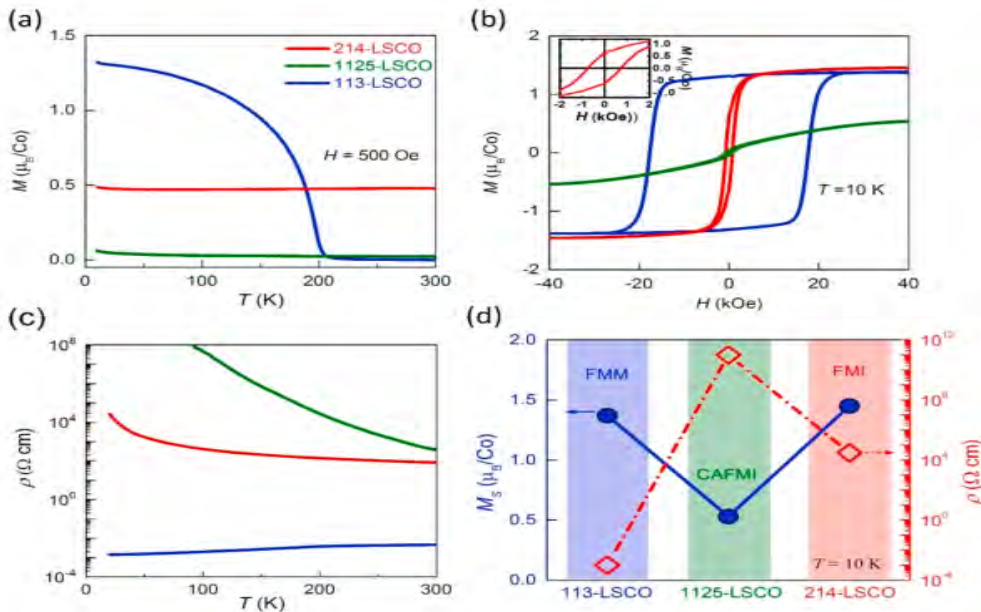
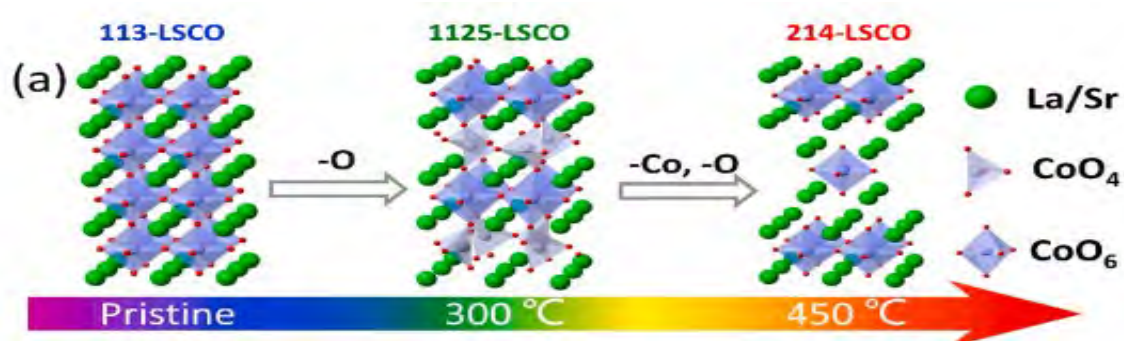
- Magnetic thin films
- Superconductor and topological films
- Functional oxide films
- Soft matters

## Recent publications:

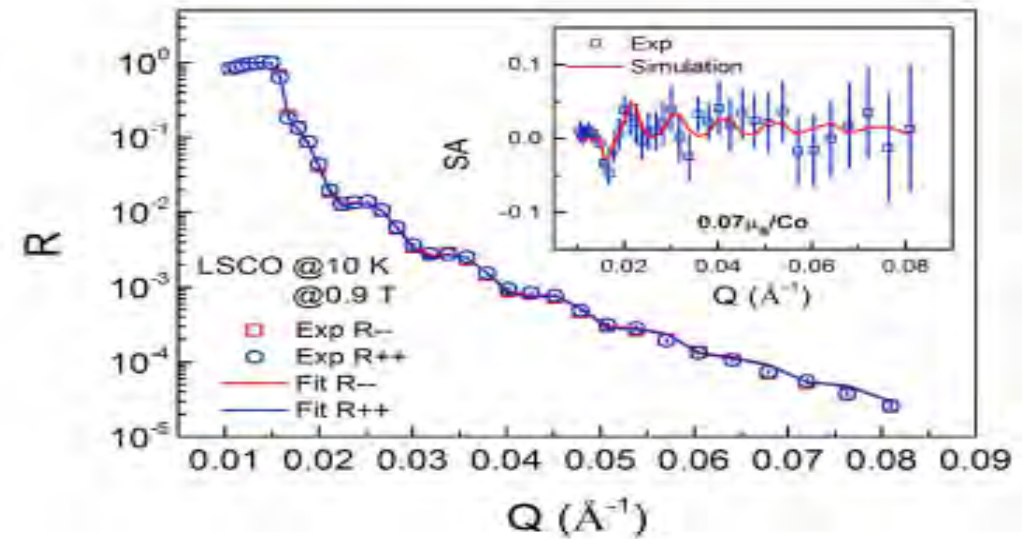
J. Phys. D: Appl. Phys. 54 035106 (2021)  
Langmuir 37, 1970-1982 (2021)  
*Adv. Mater.* 32, 1907452 (2020)  
Nano Energy 78, 105215 (2020)  
Phys. Rev. Research 2, 013127 (2020)  
*Adv. Mater.* 2005920 (2020)  
*Adv. Mater.* 2001324 (2020)  
ACS Appl. Mater. Interfaces 12, 24165 (2020);  
National Science Review, 7(1), 84 (2020)

# MR-Functional Oxide Films

## Transition-metal oxides



Topotactic phase transformations by concerted dual-ion migration of B-site cation and oxygen in multivalent cobaltite La-Sr-Co-O<sub>x</sub> films



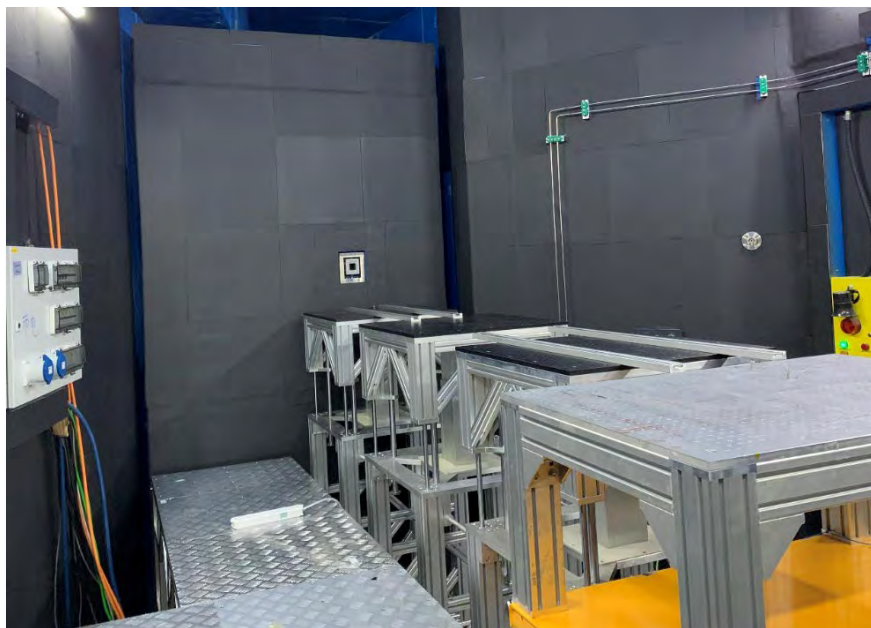
A tri-state phase transformation was found via concerted transfer of oxygen and Co ions in La<sub>0.7</sub>Sr<sub>0.3</sub>CoO<sub>3</sub> film. PNR suggested weak ferromagnetism at 10K for 1125-LSCO.

Nano Energy 78, 105215 (2020)



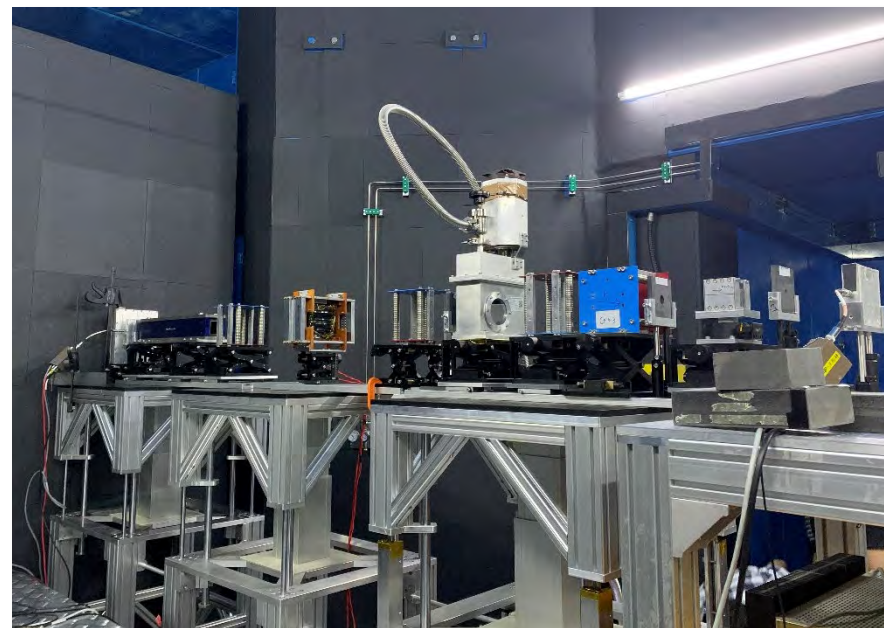
- Commissioned a Time-of-flight polarized neutron testing platform

Commissioned testing platform



Platform length	5 m
Wavelength band	0.5Å – 9.0Å
Polarization	99% (4Å)
Standard equipment	<ul style="list-style-type: none"><li>• Supermirror</li><li>• <math>^3\text{He}</math> spin filter</li><li>• Neutron spin flipper</li></ul>

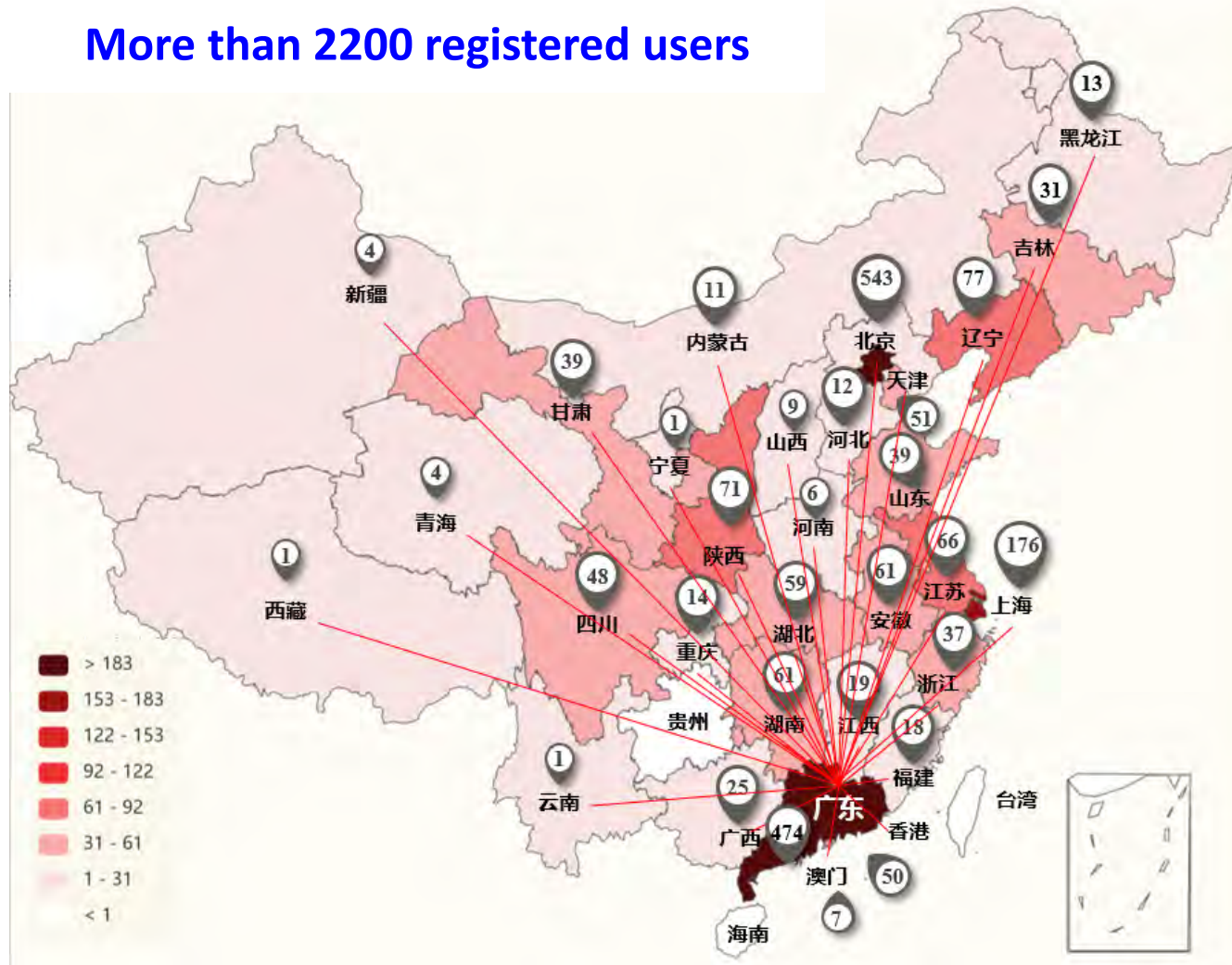
Testing time-of-flight polarized neutron



- Test and calibration of polarized neutron equipment for CSNS
- Developing time-of-flight polarized neutron technique for pulsed source

# Geographical distribution of registered users of CSNS

More than 2200 registered users



International users

United States 12 , United Kingdom 15 , Germany 11 , Australia 3 , France 4 , Canada 2 , Holland 1 , Russia 1 ,Italy 1 Spain 1 , Singapore 1, Sweden 1

# User proposal application status



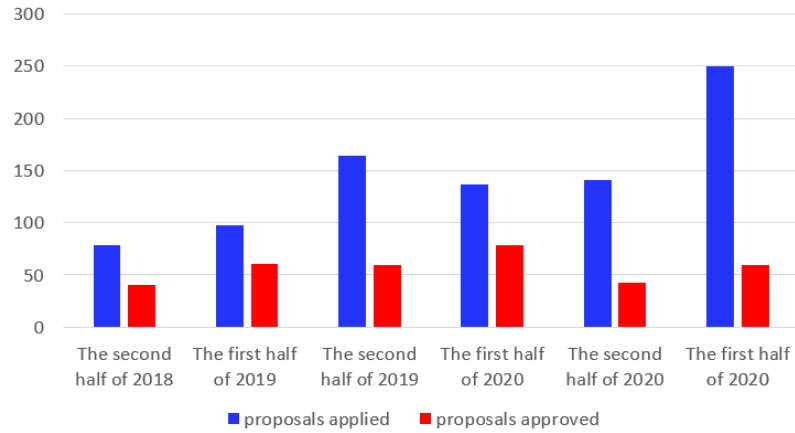
In the five runs of CSNS, more than 2,200 users registered in the CSNS User Service System, more than 280 user proposals have been completed, and more than 70 articles have been published in journals such as Science, Nature Communication, Advanced Materials, and JACS, etc.

run	number of proposals	number of proposals approved
Second half of 2019	164 (Hong Kong and Macao 4, oversee 2)	57
First half of 2020	112 (Hong Kong and Macao 7, oversee 3)	55
Second half of 2020	141 (Hong Kong and Macao 11, oversee 10)	43
First half of 2021	250 (Hong Kong and Macao 7, oversee 5)	60

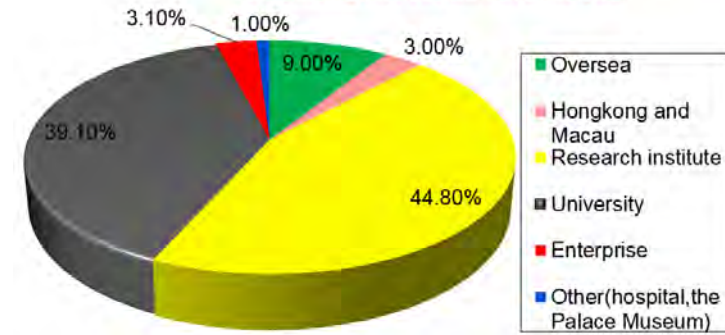
# CSNS User Community and Achievements



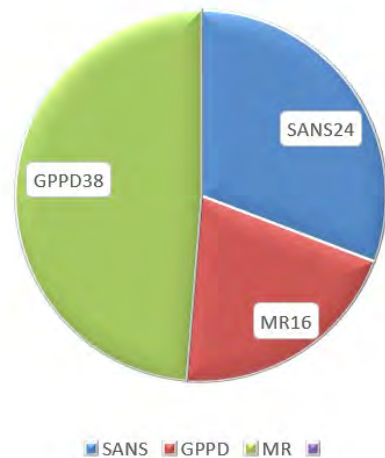
Applied and approved proposals



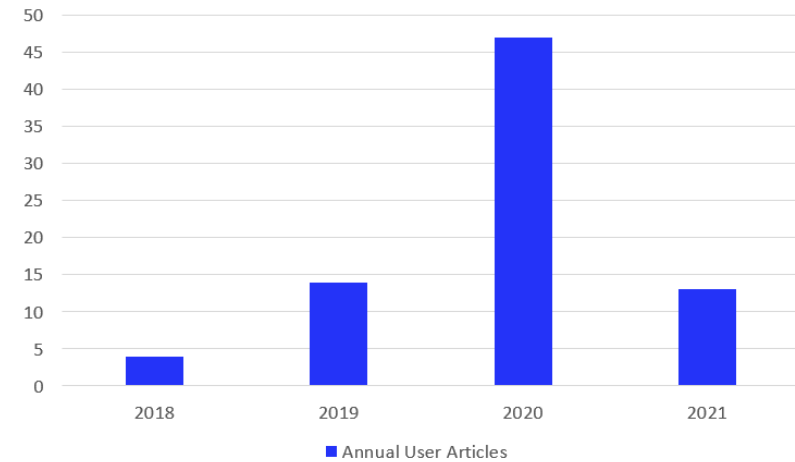
Distribution of user affiliations  
More than 2200 users, from more than 250 universities, research institutes and enterprises, registered in the CSNS user service system



User articles



Annual User Articles





# CSNS Phase II Instruments

01 小角中子散射仪  
Small-Angle Neutron Scattering Instrument

02 多功能反射仪  
Multi-purpose Reflectometer

03 液体中子反射仪  
Liquid neutron reflectometer

04 冷中子直接几何非弹谱仪  
Cold Neutron direct-geometry Inelastic Spectrometer

05 高能直接几何非弹谱仪  
High Energy Direct Geometry Spectrometer

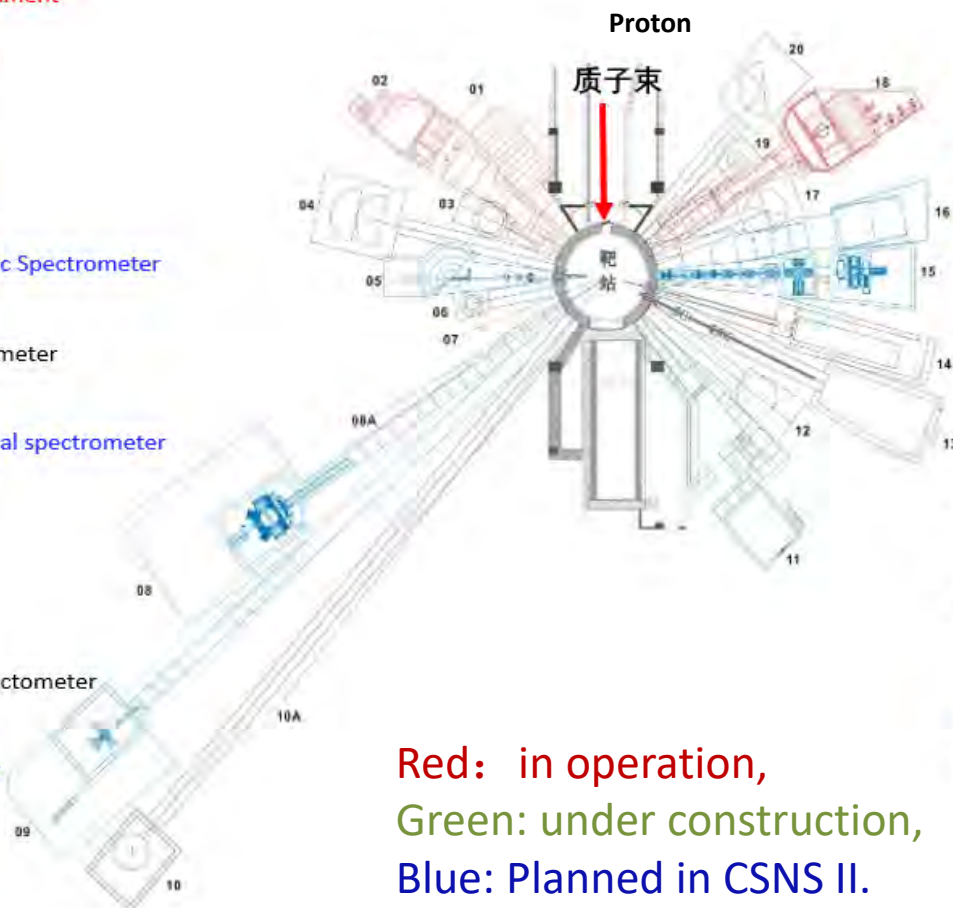
06 逆几何分子振动谱仪  
indirect geometry molecular vibrational spectrometer

07 预留 Reserve

08 工程材料中子衍射仪  
Engineering Material Diffractometer

09 高分辨中子衍射仪  
high-resolution neutron powder diffractometer

10 中子背散射谱仪  
Neutron BackScattering Spectrometer



20 直接几何极化非弹谱仪  
Direct geometry polarization inelastic spectrometer

19 大分子单晶中子衍射仪  
Macromolecular neutron diffractometer

18 通用粉末衍射仪  
General purpose powder diffractometer

17 弹性漫散射中子谱仪  
Elastic diffuse scattering

16 多物理谱仪  
Multi-Physics Instrument

15 高压中子衍射仪  
High Pressure Neutron Diffractometer

14 微小角中子散射仪  
Very Small Angle Neutron Scattering Instrument

13 能量分辨成像谱仪  
Energy-resolved neutron imaging instrument

12 中子物理与应用谱仪  
Neutron Physics and Applications Spectrometer

11 大气中子辐照谱仪  
Atmosphere Neutron Irradiation Spectrometer

Red: in operation,  
Green: under construction,  
Blue: Planned in CSNS II.

- The main parameter specifications of nine instruments of CSNS II have been determined, and two beam ports are reserved.
- The primary conceptual and physical design were completed, and entered the feasibility study stage.

# Summary

- **3 facilities in China run very well, and more scientific results obtained against the backdrop of the pandemic.**
- **More neutron instruments and sample environment are promoted.**
- **CSNS II has been approved to be included in the 14th 5-Year Plan of China.**
- **The NS user community in China expands rapidly.**
- **More NS working groups are built, to carry out further work.**
- **Training users and cultivate young talents in neutron scattering research and technology development is key issue.**
- **Welcome intl. users and cooperation in the neutron scattering and applications.**

**Look Forward for More  
International Cooperation !**





The Japanese Society for Neutron Science  
日本中性子科学会

# Report from Japanese Society for Neutron Science

**K. Kakurai**

**CROSS**



# Current Status of JSNS and Events

## Membership (22 April 2021)

570 members (including 52 students)

In addition 33 Senior members (Total of 603)

31 supporting members

## Events from the last EC meeting

Election of council members and the president (Dec 2020)

Workshop entitled 'Discussion on the Future Vision for Neutron Science' virtual (27 Jan. 2021)

The 5<sup>th</sup> Neutron and Muon School @ J-PARC MLF (Cancelled because of CORVID-19 )

The 18th Korea-Japan Meeting on Neutron Science - Workshop on Neutron and Muon Methods for J-PARC MLF Users in Korea - was held on line

## (in planning)

The 21<sup>st</sup> Annual Meeting of the Japanese Society for Neutron Science will be held virtual December 1-3, 2021 in Kumatori, hosted by the Institute for Integrated Radiation and Nuclear Science (KURNS), Kyoto University

Meeting Chair: Prof. Masaaki Sugiyama; Program Chair: Prof. Masahiro Hino

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# 2021 Board of JSNS (Apr. 2021- Mar. 2022)

President: Kazuhisa Kakurai (CROSS)

## Members of Council (16)

### 2020-2021 fiscal year

Masahiro Hino (Kyoto Univ.)

Yoshiaki Kiyonagi (Nagoya Univ. )

Kenji Nakajima ( JAEA/J-PARC)

**Yoshie Ohtake (RIKEN)**

Taku Sato (Tohoku Univ.)

Hideki Seto (KEK)

Masaaki Sugiyama (Kyoto Univ.)

Naoya Torikai (Mie Univ.)

### 2021-2022 fiscal year

**Hazuki Furukawa (Ochanomizu Univ.)**

Takashi Kamiyama (Hokkaido Univ.)

Takashi Kamiyama (KEK /CSNS)

**Hiromichi Kishimoto (Sumitomo Rubber Ind.)**

**Takuji Kume (Kao Corporation)**

Kenji Ohyama (Ibaraki Univ.)

Toshiya Otomo (KEK)

Masayasu Takeda (JAEA )

Green color: Industry

Red color: Lady

## Board of Administration

### Secretary

Hitoshi Endo (KEK)

Masato Matsuura (CROSS)

### Events Coordination

Toshiyuki Chatake (Kyoto Univ.)

Ryoji Maruyama (J-PARC)

Koichi Mayumi (Univ. Tokyo)

### Public-Relations

Xiang Li (Univ. Tokyo)

Ken Morishima (Kyoto Univ.)

### Treasurer

Yohei Onodera (Kyoto Univ.)

Yojiro Ohba (JAEA)

### Communication

Daisuke Okuyama (Tohoku Univ.)

**Maiko Kofu (J-PARC)**

### Publication

Kazuya Kamazawa (CROSS)

Masato Hagihala (KEK)

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# Workshop: Discussion on the Future Visions for Neutron Science

Workshop Organizers: T. Otomo, J. Suzuki, M. Takeda, M. Hino, M. Fujita

## Workshop Program :

- 'Introduction' M. Shibayama (CROSS)
- 'Status and Future Plan of JAEA' M. Takeda (JAEA)
- 'Status and Future Plan of Neutron Science Facility of ISSP, Univ. of Tokyo'  
O. Yamamuro (ISSP, Univ. Tokyo)
- 'Status and Future Plan of the Institute for Integrated Radiation and Nuclear Science, Kyoto Univ.'  
Y. Kawabata (KURANS, Kyoto Univ.)
- 'Status and Future Plan of J-PARC MLF' T. Otomo (J-PARC)
- 'Status and Future Plan of the Center of Neutron Science for Advanced Materials at IMR'  
M. Fujita (IMR, Tohoku Univ.)
- 'Status and Future Plan of Ibaraki University' T. Kohzuma (Ibaraki Univ.)
- 'Status and Future Plan of Compact Neutron Source Network and Facility Networking WG'  
Y. Kiyonagi (Nagoya Univ.)
- 'Status and Future Plan of the Industrial Users Society for Neutron Application (IUSNA)'  
M. Hibi (IUSNA)
- 'Future of the JSNS - The role of the JSNS for the neutron science promotion- '  
K. Kakurai (JSNS)

Open Discussion

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(in planning)

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Meeting Chair: Prof. Masaaki Sugiyama; Program Chair: Prof. Masahiro Hino

## 18th Korea-Japan Meeting on Neutron Science (30 April 2021): Timetable

The 18th Korea-Japan Meeting on Neutron Science was held on April 30th, 2021, online. In total, 77 participants (Korea: 48, Japan: 29) registered for the meeting. The meeting was organized by the Japanese Society of Neutron Science (JSNS), the Korean Neutron Beam Users Association (KNBUA) and Materials & Life Science Division of the J-PARC Center.

10:00	<b>Welcome address</b> ZOOM	<i>Dr Kazuhisa Kakurai</i> 10:00 - 10:05
	<b>Overview of MLF</b> ZOOM	<i>Prof. Toshiya Otomo</i> 10:05 - 10:35
11:00	<b>Present Status of Neutron Instruments</b> ZOOM	<i>Dr Yukinobu Kawakita</i> 10:35 - 11:20
12:00	<b>Present Status of Muon Instruments</b> ZOOM	<i>Prof. Koichiro Shimomura</i> 11:20 - 12:05
13:00	<b>Quantitative Multiscale Imaging by Talbot-Lau Neutron Grating Interferometry</b> ZOOM	<i>Dr Youngju Kim</i> 13:00 - 13:25
	<b>A Neutron Reflectivity Study of Confined Polymer Films</b> ZOOM	<i>Prof. Jaseung Koo</i> 13:25 - 13:50
14:00	<b>Time-resolved SANS for exchange kinetics of block copolymer micelle</b> ZOOM	<i>Mr Tae-Young Heo</i> 13:50 - 14:15
	<b>Neutron Powder Diffraction Study of Spin Structures in Double Perovskite Oxides</b> ZOOM	<i>Prof. Deok-Yong Cho</i> 14:15 - 14:40
15:00	<b>Neutron diffraction study of additively manufactured martensitic stainless steel</b> ZOOM	<i>Mr Hobyung Chae</i> 14:40 - 15:05
	<b>Neutron and muon spectroscopies for magnetic materials</b> ZOOM	<i>Prof. Jae-Ho Chung</i> 15:05 - 15:30
16:00	<b>Discussion for Proposals</b> <i>Prof. Hiideki Sato</i> ZOOM	  15:30 - 16:30



Jae-Ho Chung (Korea Univ)	Hideki Seto(J-PARC, KEK)	Kazu Kakurai (SNS/CROSS)	Kenji Nakajima (MSRC, JAEA/J-PA...	Toshiya Otomo (J-PARC)	Myunghwan Jung(KAERI)	Stefanus Harjo (J-PARC)
Koichiro Shimomura(KEK IMSS)-P...	Sungkyun Park (Pusan National Un...	Soo-Hyung Choi (Hongik Univ.)	Soo Yeol Lee(Chungnam Nati. Univ.)	You Sub Kim (Ch...		June Hyuk Lee (...)
Yukinobu Kawakita(J-PARC)	M K RAHMAN (SOKENDAI)	Mitsuhiro SHIBAYAMA(CROSS)	Seungyub Song(Sokenda)	shinichi Itoh (KEK)	혁진 Prabu Mani (Kyu...	
Sang-Woo Jeon (Jeonbuk National...	Naritoshi Kawamura(KEK)	Minyoung Yoon (Kyungpook Natio...	Youngjin Yoon(Jeonbuk NU)	Deok-Yong Cho (Jeonbuk NU)	Nguyen Tien Dun... Younghu Son(Kyungpook National...	
wakimoto shuichi (J-PARC, JAEA)	Shinichi Shamoto (CROSS)	ryuji mariyama	NODA, Yukio (Tohoku U., 東北大)	Sungil Park (KAERI)	Hiroyuki Aoki (J-PARC)	Jun Kue Park (KAERI)
Yong Seok Hwang (KAERI)	Youngju Kim(UMD/NIST)	Haruki Shimizu	Taeyoung Heo (Hongik University)	Soonyoung Park (Chung-Ang Univ)	Eun Soo Park (S...	
Hobyoung Chae (Chungnam Nation...	Takashi OHHARAJ(J-PARC)	Ryoji Kiyanagi	Myunghwan Jung(KAERI)	Stefanus Harjo (J-PARC)	Gahyun Choi(Ch...	
Hiroyuki Aoki (J-PARC)	Jun Kue Park (KAERI)	이승욱	June Hyuk Lee (...)		Min Seok Kim (Seoul National Univ...	Sangho Lee (Hon... kimjiyun (kyungp...
Ji Young Kim (Seoul National Univ...	Eun Soo Park (S...	P.C. Rao (Kyungp...	혁진		Prabu Mani (Kyu...	Sanghyun Lee(L...
Hyunchul Oh(Gyeongsang Nationa...	Gahyun Choi(Ch...	Nguyen Thanh D...	Nguyen Tien Dun...		Younghu Son(Kyungpook National...	이승욱

# Current Status of JSNS and Events

## Membership (22 April 2021)

570 members (including 52 students)

In addition 33 Senior members (Total of 603)

31 supporting members

## Events from the last EC meeting

Election of council members and the president (Dec 2020)

Workshop entitled 'Discussion on the Future Vision for Neutron Science' virtual (27 Jan. 2021)

The 5<sup>th</sup> Neutron and Muon School @ J-PARC MLF (Cancelled because of CORVID-19 )

The 18th Korea-Japan Meeting on Neutron Science - Workshop on Neutron and Muon Methods for J-PARC MLF Users in Korea - was held on line

**(in planning)**

**The 21<sup>st</sup> Annual Meeting of the Japanese Society for Neutron Science will be held virtual December 1-3, 2021 in Kumatori, hosted by the Institute for Integrated Radiation and Nuclear Science (KURNS), Kyoto University**

**Meeting Chair: Prof. Masaaki Sugiyama; Program Chair: Prof. Masahiro Hino**

## COVID-19 related measure

Since there is still no end to be seen for the coronavirus outbreak in Japan, the JSNS has decided to waive the FY2021 membership fee for students, as has been done for the FY2020.

# Current Status of JSNS and Events

## Membership (22 April 2021)

570 members (including 52 students)

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**The 5<sup>th</sup> Neutron and Muon School @ J-PARC MLF (Cancelled because of CORVID-19 )**

**The 18th Korea-Japan Meeting on Neutron Science - Workshop on Neutron and Muon Methods for J-PARC MLF Users in Korea - was held on line (30 April, 2021)**

**(in planning)**

**The 21<sup>st</sup> Annual Meeting of the Japanese Society for Neutron Science will be held virtual December 1-3, 2021 in Kumatori, hosted by the Institute for Integrated Radiation and Nuclear Science (KURNS), Kyoto University**

**Meeting Chair: Prof. Masaaki Sugiyama; Program Chair: Prof. Masahiro Hino**





# Report from the Korean Neutron Beam Users Association

The 26<sup>th</sup> AONSA EC meeting  
Online via ZOOM  
2021/06/19



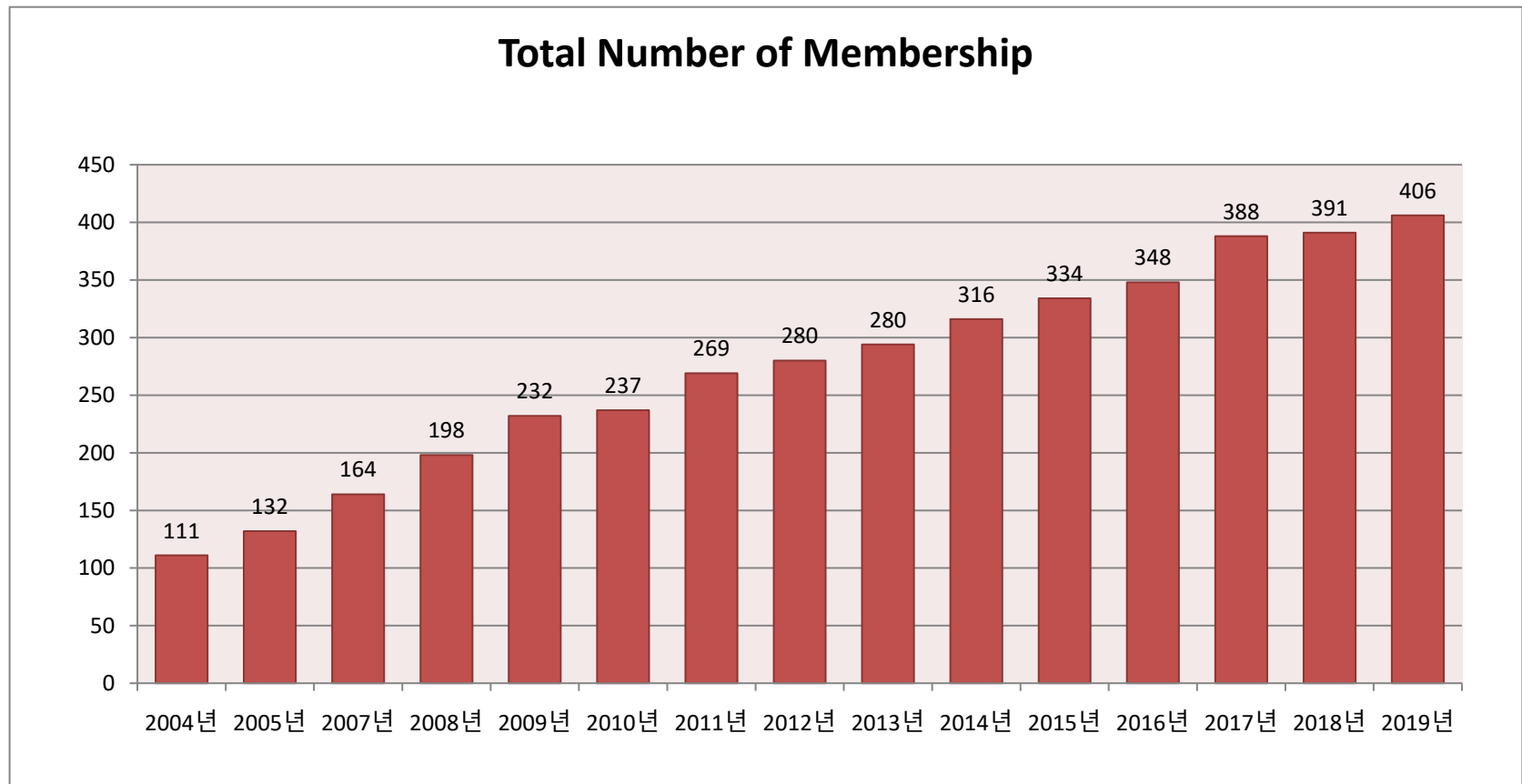
Soo-Hyung Choi (Hongik Univ.)  
Jae- Ho Chung (Korea Univ.)

# KNBUA: Current Status

◆ **Total number of membership: 417 (as of 2021)**

□ Professionals: 181

□ Students: 236



# Korean Neutron Beam Users Association

## ◆ **KNBUA Executive Committee Meeting (2021. 1. 13 & 6. 4)**

- ❑ **President: Jae-Ho Chung (Korea U) / 2-year extension**
- ❑ Auditor: Kwanwoo Shin (Seogang U)
- ❑ Secretary: Soo-Hyung Choi (Hongik U)
- ❑ HANARO representative: Sungil Park (KAERI)
- ❑ Discussion
  - Reopening of HANARO
  - Roadmap of Neutron Facilities in Korea

## ◆ **KNBUA General Assembly of 2021 (2021. late July)**

- ❑ HANARO, Daejeon, Korea



# Korean Neutron Beam Users Association

## ◆ 18<sup>th</sup> Korea-Japan Meeting on Neutron Science (2021. 4. 30)

□ 2021. 4. 30 / ZOOM Online

□ Registered: 77

□ Contents

- Present status of Neutron / Muon instruments
- Scientific presentation
- Discussion room



# Research Grant to support neutron research

## ◆ Center for Materials Research using Neutron Beams

- ❑ Supported by the NSF of Korea by the Grant to Support Researches Using Large Overseas Research Facilities.
- ❑ Period: 2020/06/17 – 2022/12/31
- ❑ Fund: approximately USD 165,000 x three years
  - ❖ Neutron beamtime experiments (partly synchrotron and muon)
  - ❖ Neutron schools and workshops
  - ❖ Can support students from non-participating research groups
- ❑ Primary Investigator: Jae-Ho Chung (Korea University)
- ❑ Regular Participants: Sungkyun Park (Pusan NU), Soo-Hyung Choi (Hongik U), Tae-Hwan Kim (Cheonbuk NU), Su-Yeol Lee (Chungnam NU), Eun-Soo Park (Seoul NU), Seungwook Lee (Pusan NU), Hyeon-Cheol Oh (Kyeongnam STU), Minyoung Yoon (Kyeongbuk NU)
- ❑ Renewal of “Center for Materials Research using Neutron Beam Facilities” 2017/04/07 – 2019/12/31



# 26<sup>th</sup> AONSA

# EC Meeting

**TWNSS Activity Report 2021/06/26**

*Chun-Chuen Yang, TWNSS President*



# TWNSS 2020 annual meeting (10/15-17, 2020)

## *Election Results*

**President**

**Vice President**

**Supervisor**

**Supervisor**

**Supervisor**



**Chun-Chuen Yang**

**Hsiao-Ching Yang**

**Hsiung Chou**

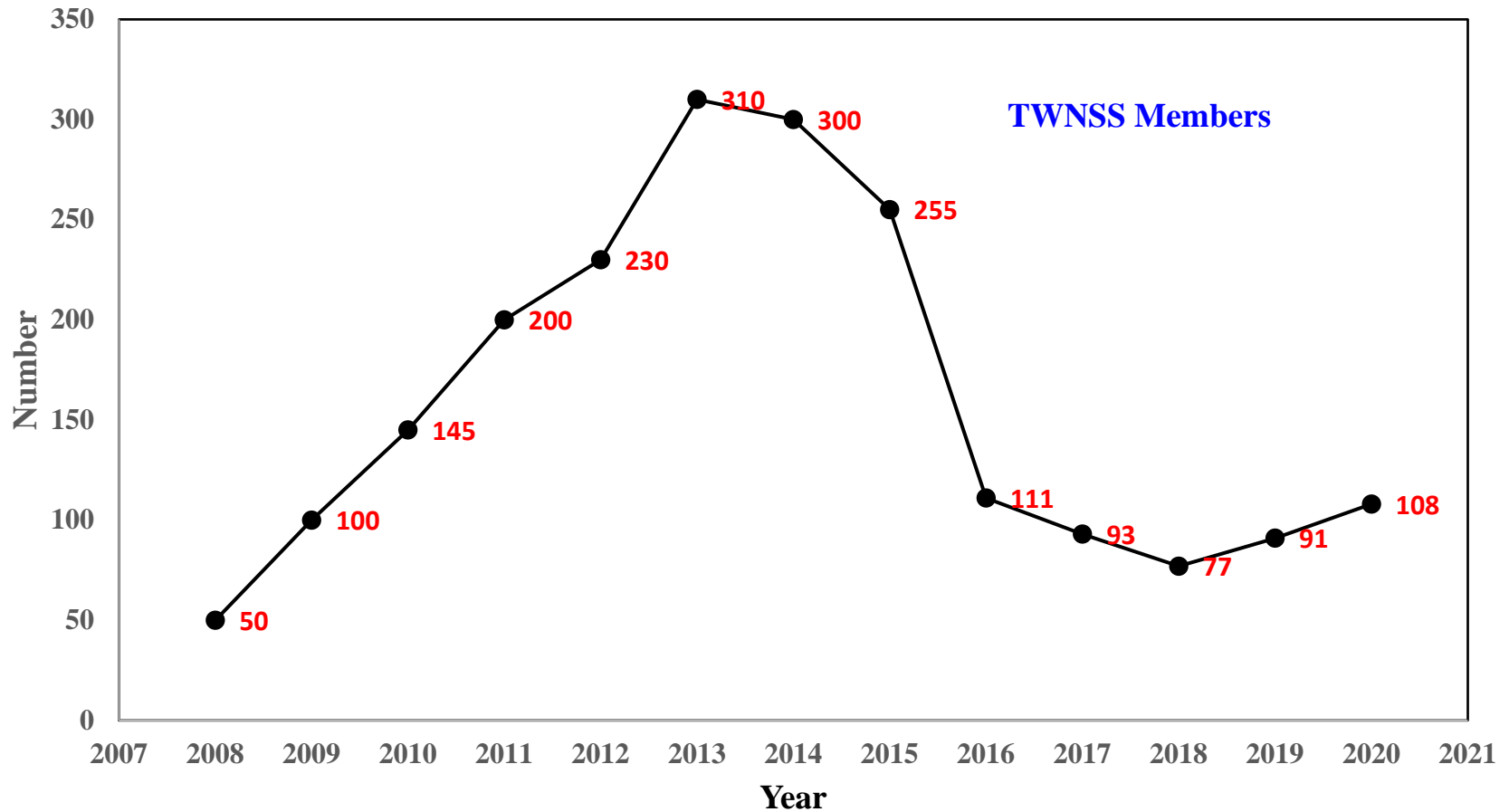
**Ching-Ming Chen**

**U-Ser Jeng**

**+**

***15 Directors***

# TWNSS 2020 annual meeting (10/15-17, 2020)





# Renew TWNSS Website

台灣中子科學學會/TWNSS

首頁/Home 學會簡介/About TWNSS 學會公告/Announcement 最新動態



## 台灣中子科學學會 Taiwan Neutron Science Society

最新消息 / Latest News 瀏覽人次/Page Views 010318

2021/06/21 台灣中子散射實驗設施之應用推廣及用戶培育計畫/Promotion of the Application for Taiwan Neutron Scattering Facility and User Cultivation Project

Dear NSRRC and neutron users,

The MOST "Taiwan Neutron Scattering Experimental Facility Application Promotion and User Nurturing Program" 2021 Phase II Neutron Project online application is extended to 24:00 on July 04,

台灣中子科學學會/TWNSS

首頁/Home 學會簡介/About TWNSS 學會公告/Announcement 中子科學/Neutron Science 研討會/Conference 更多資訊

## 第七屆 / The 7th members (2020/10/15 ~2022/10/14)



理事長 楊仲準  
中原大學物理學系  
President, Prof. Chun-Chuen Yang



副理事長 楊小青  
輔仁大學化學系  
Vice-President, Prof. Hsiao-Ching Yang



秘書長 朱哲毅  
中興大學化學工程學系  
Secretary General, Prof. Che-Yi Chu

台灣中子科學學會/TWNSS

首頁/Home 學會簡介/About TWNSS 學會公告/Announcement 中子科學/Neutron Science 研討會/Conference 理事會/Board

## 學會會刊/Bulletin of TWNSS

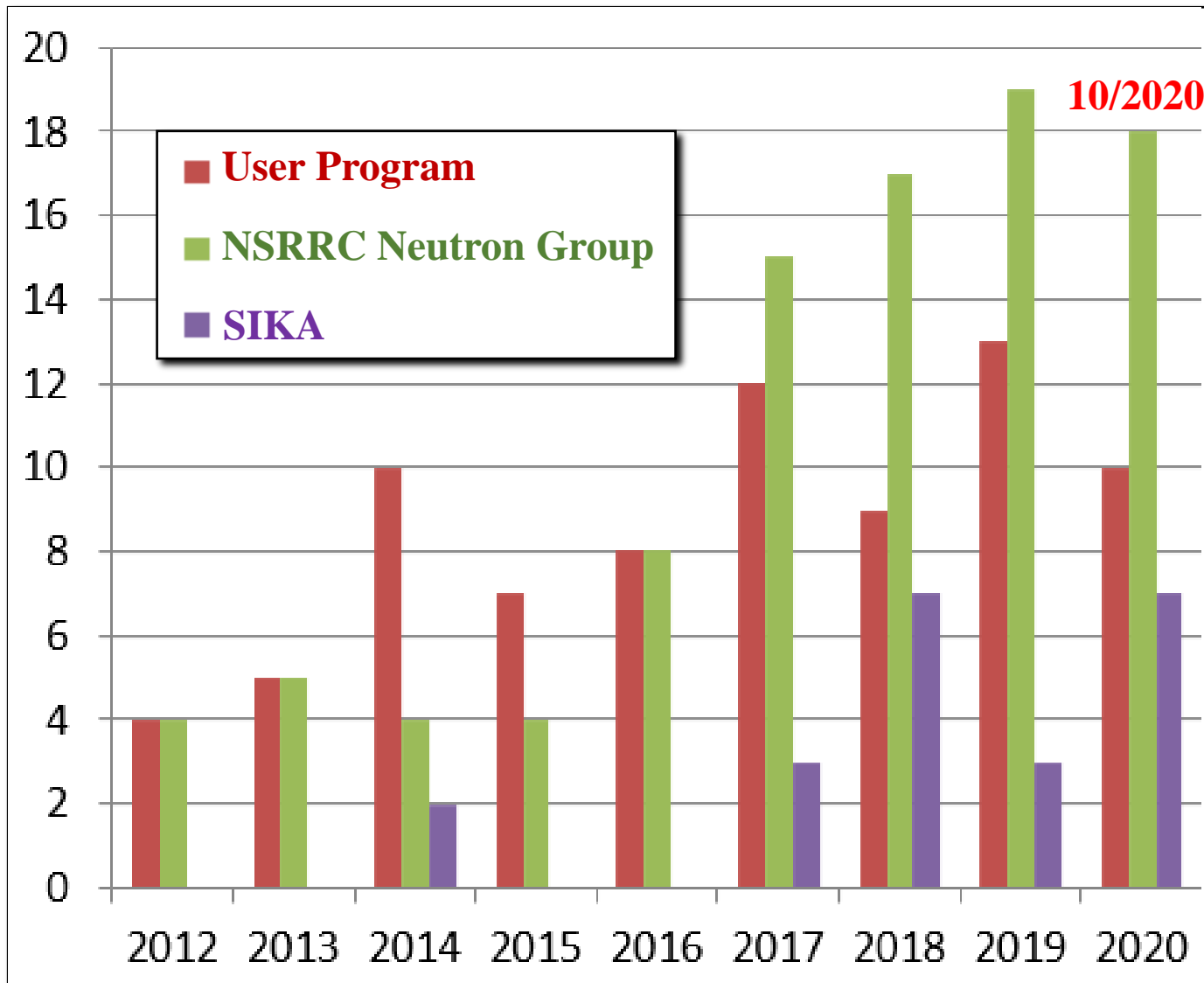
Next Release Date : August 2021

名稱/Name & 出版日期/Release Date	瀏覽/View / 下載/Download
【TWNSS Newsletter】第7卷第1期 2020/08/01	TWNSS-Newsletter_第7卷第1期_20200801.pdf
【TWNSS Newsletter】第6卷第2期 2019/08/01	TWNSS-Newsletter_第6卷第2期_20190801.pdf
【TWNSS Newsletter】第6卷第1期 2019/01/01	TWNSS-Newsletter_第6卷第1期_20190101.pdf
【TWNSS Newsletter】第5卷第1期 2017/12/01	TWNSS-Newsletter_第5卷第1期_20171201.pdf
【TWNSS Newsletter】第4卷第1期 2015/03/23	TWNSS-Newsletter_第4卷第1期_20150323.pdf
【TWNSS Newsletter】第3卷第2期 2014/10/05	TWNSS-Newsletter_第3卷第2期_20141005.pdf



<https://www.twNSS.org.tw/>

# Publications of TWNSS members



# Publications of TWNSS members (2021)

1. [Unravelling thermal history during additive manufacturing of martensitic stainless steel](#) Hobyung Chae, E-Wen Huang\*, Wanchuck Woo, Suk Hoon Kang, Jayant Jain, Ke An, Soo Yeol Lee\*, Journal of Alloys and Compounds 857, 157555 (2021) SNS (IF=4.650)
2. [Dual lattice incommensurabilities and enhanced lattice perfection by low-temperature thermal annealing in photoelectric \(CH<sub>3</sub>NH<sub>3</sub>\)PbBr<sub>3</sub>](#), Wen-Hsien Li,\* Chi-Hung Lee, Tsu-Yin Ling, Ma-Hsuan Ma, Pai-Chun Wei, Jr-Hau He, Chun-Min Wu, Jen-Chih Peng, Guangyong Xu, Yang Zhao, and Jeffrey W. Lynn, Phys. Rev. M 5, 025401 (2021) ANSTO/NIST (IF=3.337)
3. [Formulation of magnetic nanocomposites for intracellular delivery of micro-RNA for MYCN inhibition](#) Ndumiso Vukile Mdlovu, Kuen-Song Lin, Yun Chen, Chun-Ming Wu Colloids and Surface A: Physicochemical and Engineering Aspects 615, 126264 (2021) ANSTO (IF=3.990)
4. [Study on the dynamics of a vanadium doped LiFePO<sub>4</sub> lithium-ion battery using quasi-elastic neutron scattering technique](#) Chih-Wei Hu, Chih Hao-Lee, and pin-Jiun Wu, J Chin Chem Soc. 2021, 1-5 (2021) HMI (IF=1.210)
5. [Charge transfer enhanced magnetic correlations in type-II multiferroic Co<sub>3</sub>TeO<sub>6</sub>](#) Chi-Hung Lee, Erdembayalag Batsaikhan, Ma-Hsuan Ma, Wen-Hsien Li\*, Chin-Wei Wang, Chun-Min Wu, Hung-Duen Yang, Jeffrey W. Lynn, and Helmuth Berger Journal of the Chinese Chemical Society 68, 395-402 (2021) NIST (IF=1.210)
6. [Solid electrolyte interphase layer formation on mesophase graphite electrodes with different electrolytes studied by small-angle neutron scattering](#) C. M. Wu, L. Saravanan, H.-Y. Chen, P.-I. Pan, C.-S. Tsao, C.-C. Chang\*, Journal of the Chinese Chemical Society 68, 434-443 (2021) ANSTO (IF=1.210)
7. [Molecular dynamics simulation combined with small-angle X-ray/neutron scattering defining solution-state protein structures](#) S.-W. Lin, K.-H. Su, Y.-Q. Yeh, U. S. Jeng, C. M. Wu, H.-C. Yang Journal of the Chinese Chemical Society 68, 403-408 (2021) ANSTO (IF=1.210)
8. [Targeted delivery of LM22A-4 by cubosomes protects retinal ganglion cells in an experimental glaucoma model](#), Y. Ding, S. H. Chow, J. Chen, A. P. L. Brun, C. -M. Wu, A. P. Duff, Y. Wang, J. Song, J.-H. Wang, V. H. Y. Wong, D. Zhao, T. Nishimura, T.-H. Lee, C. E. Conn, H.-Y. Hsu, B. V. Bui, G.-S. Liu\*, and H.-H. Shen\*, Acta Biomaterialia 126, 433-444 (2021) ANSTO (IF=7.242)
9. [Substrate-dependent arrangements of the subunits of the BAM complex determined by neutron reflectometry](#) Xiaoyu Chen, Yue Ding, Rebecca S. Bamert, Anton P. Le Brun, Anthony P. Duff, Chun-Ming Wu, Hsien-Yi Hsu, Takuya Shiota, Trevor Lithgow,\* and Hsin-Hui Shen BBA - Biomembranes 1863, 183587 (2021) ANSTO (IF=3.400)

# Promotion

## 2021 Chemistry Meeting, National Central University (3/12-3/14)



<https://www.2021csnm.tw/>



### 2021化學年會 國立中央大學·台灣

國家同步輻射研究中心  
National Synchrotron Radiation Research Center

#### 中子束設施化學研究應用

同步輻射X光束結合中子束技術在分子及材料研究中，提供了非常獨特且強大的解析力。因為中子能量十分的低，適合用於非破壞性檢測，具有自旋特性能夠偵測其他方法無法測量的磁性結構，同時對於輕原子的散射截面也比同步輻射X光及電子顯微鏡的電子大許多，能輕易觀測其高分子、有機分子或病毒的結構。

更多研究資訊請至教學研究綜合大樓暨大樓A25櫃位諮詢 與網站參訪[www.nsrcc.org.tw](http://www.nsrcc.org.tw)

#### 牟中原 教授 (Chung-Yuan Mou)

**[大會主演講] 09:00, Mar. 14**  
大樓堂

現任單位: 國立臺灣大學化學系教授、中央研究院院士  
主要研究: 液態水之統計力學、奈米孔隙分子篩及其應用、非均相觸媒、奈米生物醫學 等等  
演講題目: Mesoporous Silica for Applications

#### 周必義 教授 (Pi-Tai Chou)

**[分組演講 物理化學1] 13:30, Mar. 13**  
教學研究綜合大樓北面 TR-A203

現任單位: 國立臺灣大學化學系教授、國立臺灣大學新興物質與前離子科技研究中心主任  
主要研究: 有機生化分子光譜、半導體奈米材料合成、太陽能相關研究 等等  
演講題目: Molecular Assembly and Molecular Machinery

#### 楊小青 教授 (Hsiao-Ching Yang)

**[分組演講 生物化學3] 16:05, Mar. 13**  
寶策會 (工程二館) 106

現任單位: 輔仁大學化學系教授、輔仁大學研發長、台灣中子科學學會副理事長  
主要研究: 分子動力模擬、時間光譜解析、酵素藥物動力學、X光/中子散射研究 等等  
演講題目: In-Situ/Operando X-ray and Neutron Scattering Probing of Solution-State Protein Nanochannel Dynamics

#### 楊仲準 教授 (Chun-Chuen Yang)

**[分組演講 有機金屬2] 11:05, Mar. 14**  
教學研究綜合大樓北面 TR-A206

現任單位: 中原大學物理學系、中原大學職涯發展處副處長、台灣中子科學學會理事長  
主要研究: 奈米與磁性物理  
演講題目: Neutron Scattering – Applications in Chemistry and Materials Science



# Promotion

*2021 International Conference on Modern Challenges in Polymer Science and Technology, National Sun Yat-sen University (7/9-7/10)*

2021高分子學會年會

關於年會 ▾

報名暨投稿 ▾

會議議程 ▾

學術研討會 ▾

Forum for Synchrotron  
XRD and Neutron application

大會演講

總議程表

分組議程表

同步輻射與中子射束應用論壇

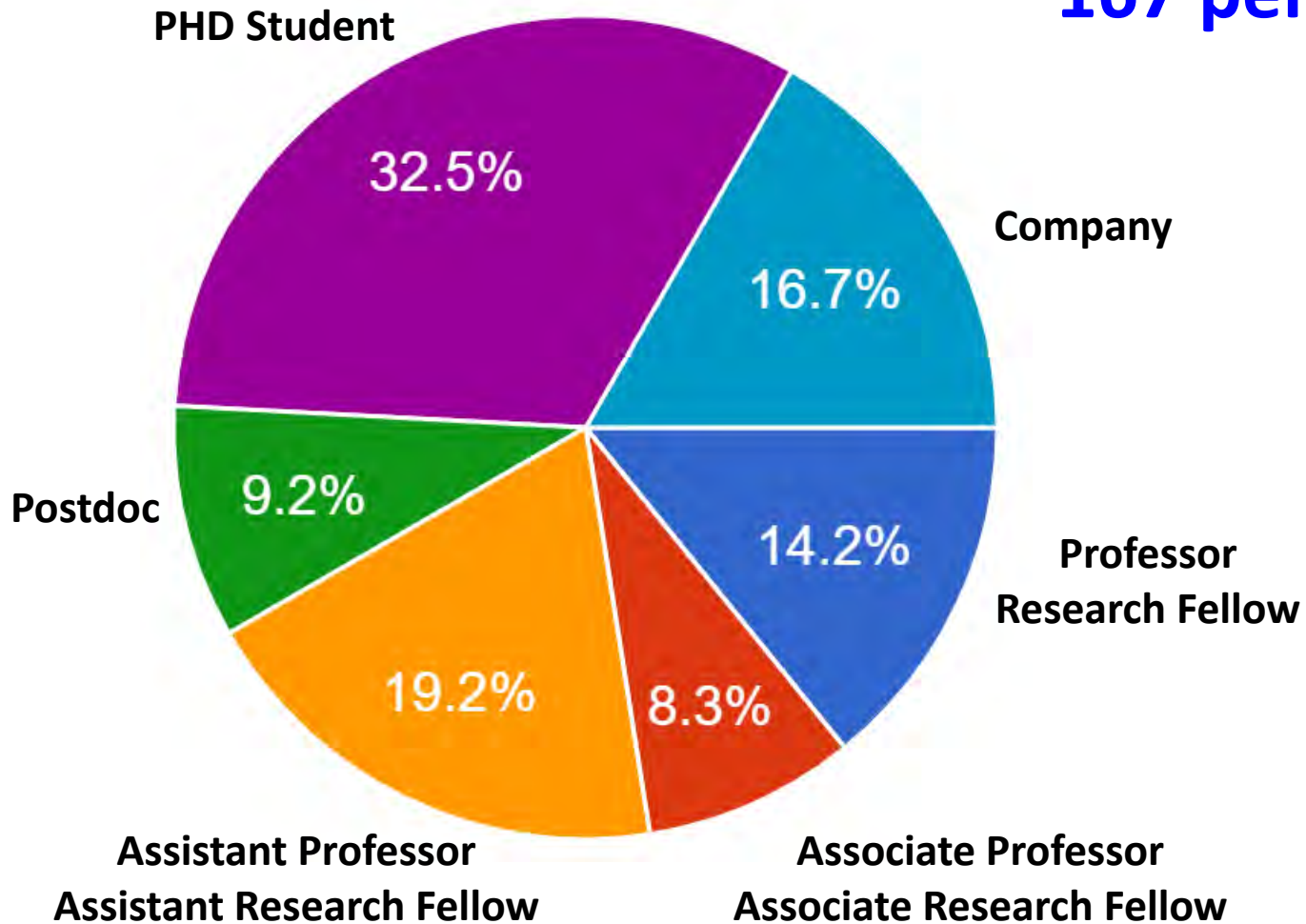
<http://www.pst.org.tw/conference/index.html>





# User Survey

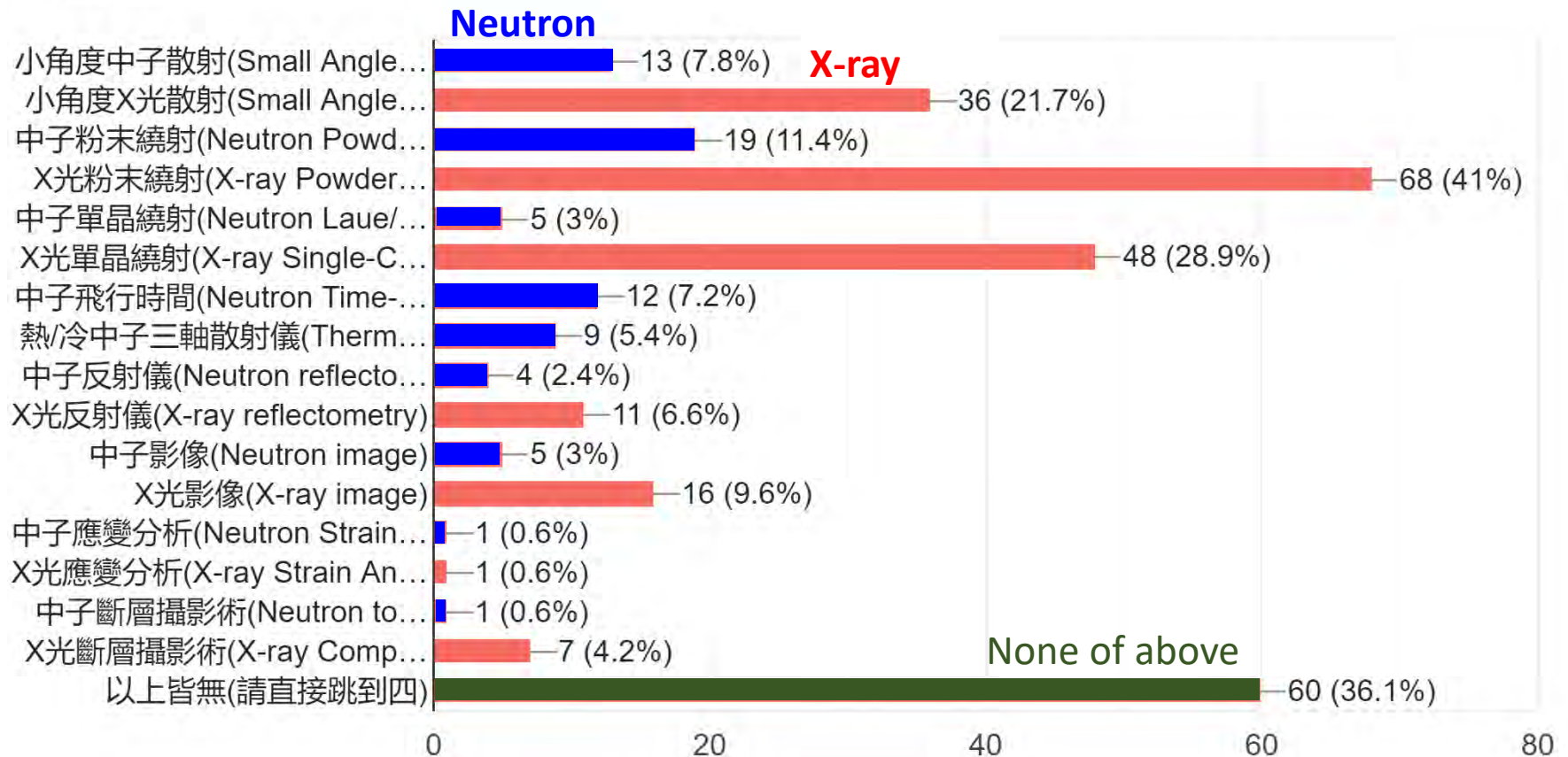
**167 persons**



# User Survey

一、下面的那些設備您曾使用過呢?(可複選) **Which instrument you ever used?**

166 則回應

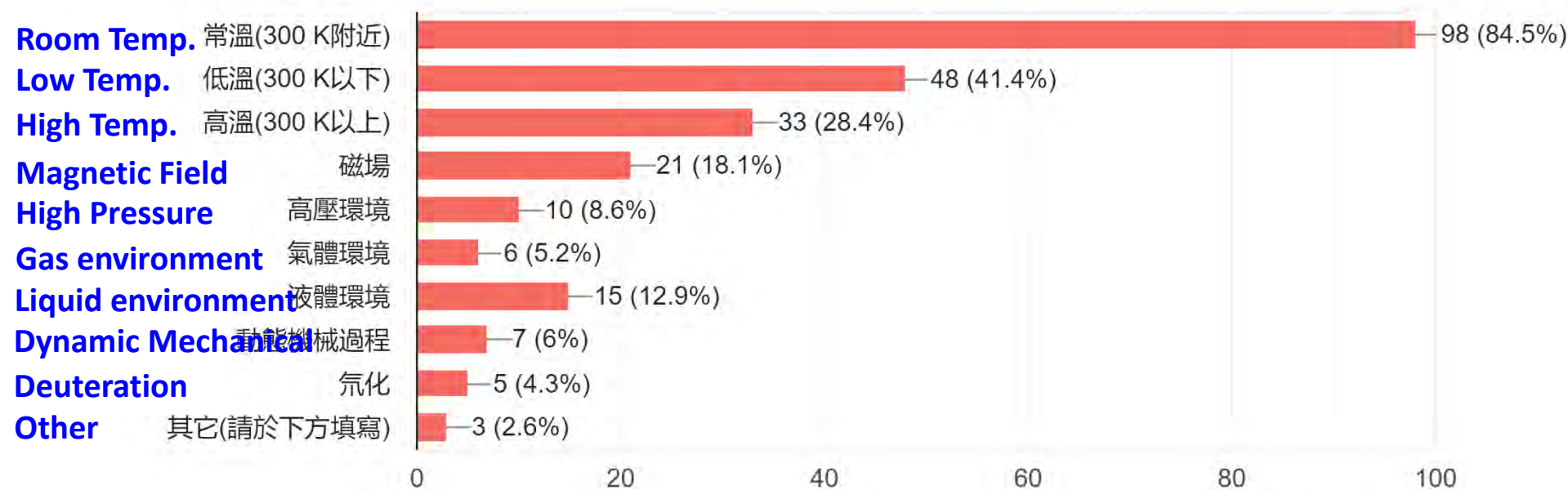


# User Survey

## 三、您所會使用的樣品研究環境?(可複選)

116 則回應

## Sample environments?



***Thank you for your  
Attention!***

## A brief report from the Russian neutron society (ROSNEUTRO)

*A.F. Gubkin, M.N. Mikheev Institute of metal physics, Ekaterinburg, Russia*



**Dr. Sergey V. Grigoriev**  
President of ROSNEUTRO



RUSSIAN  
NEUTRON  
SOCIETY

[www.rosneutro.ru](http://www.rosneutro.ru)



271 members



I. JINR, Dubna IBR-2, 1984 / 2012, 2 MW	15 instruments TOF-technique	operating
II. NRCKI, Moscow IR-8, 1957 / 1981, 8 MW	6 instruments $\lambda = \text{const}$	operating
III. IMP, Yekaterinburg IVV-2M, 1966 / 1982, 15 MW	3 instruments $\lambda = \text{const}$	operating
IV. PNPI, Gatchina WWR-M, 1959, 16 MW	15 instruments $\lambda = \text{const}$	stopped

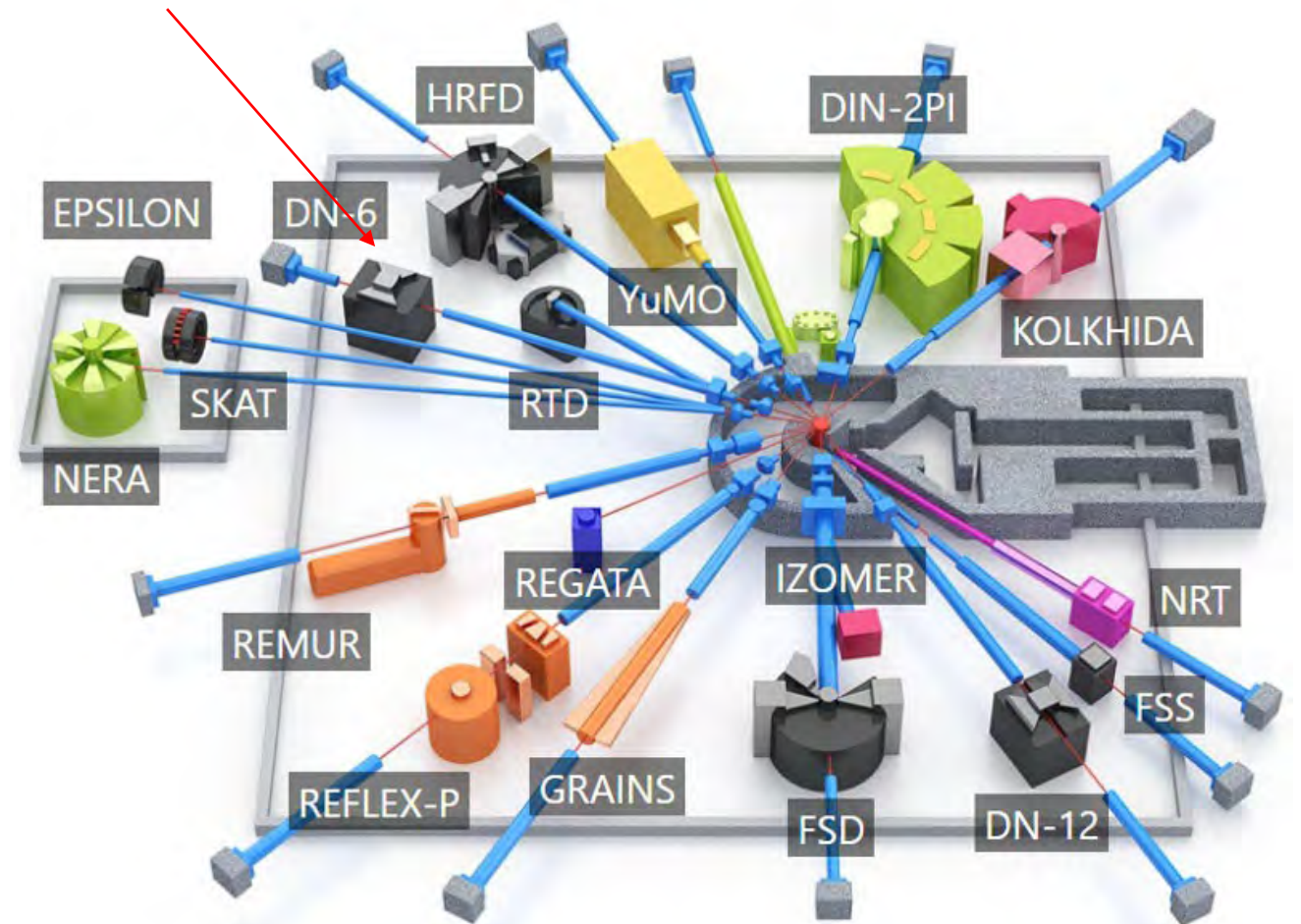
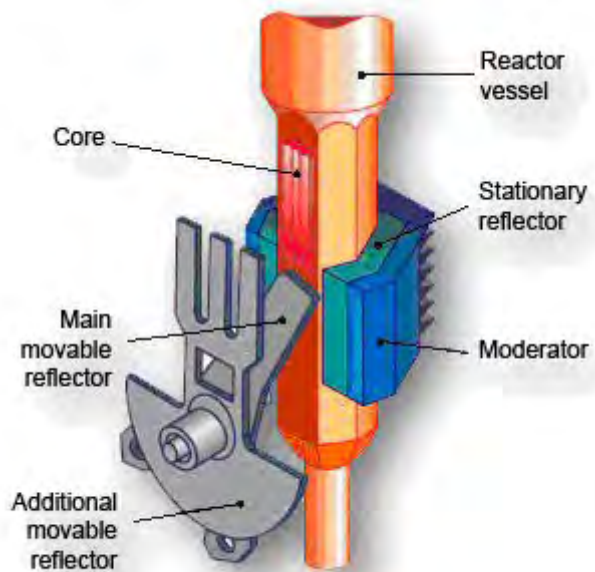
## Reactor commissioning in 2022

20 instruments will be commissioned by 2024

V. PNPI, Gatchina PIK 100 MW	5 instruments have been commissioned 5 instruments are under construction
---------------------------------	--

## IBR-2 pulse type reactor, JINR, Dubna

Next cycle: September 20 - October 2, 2021

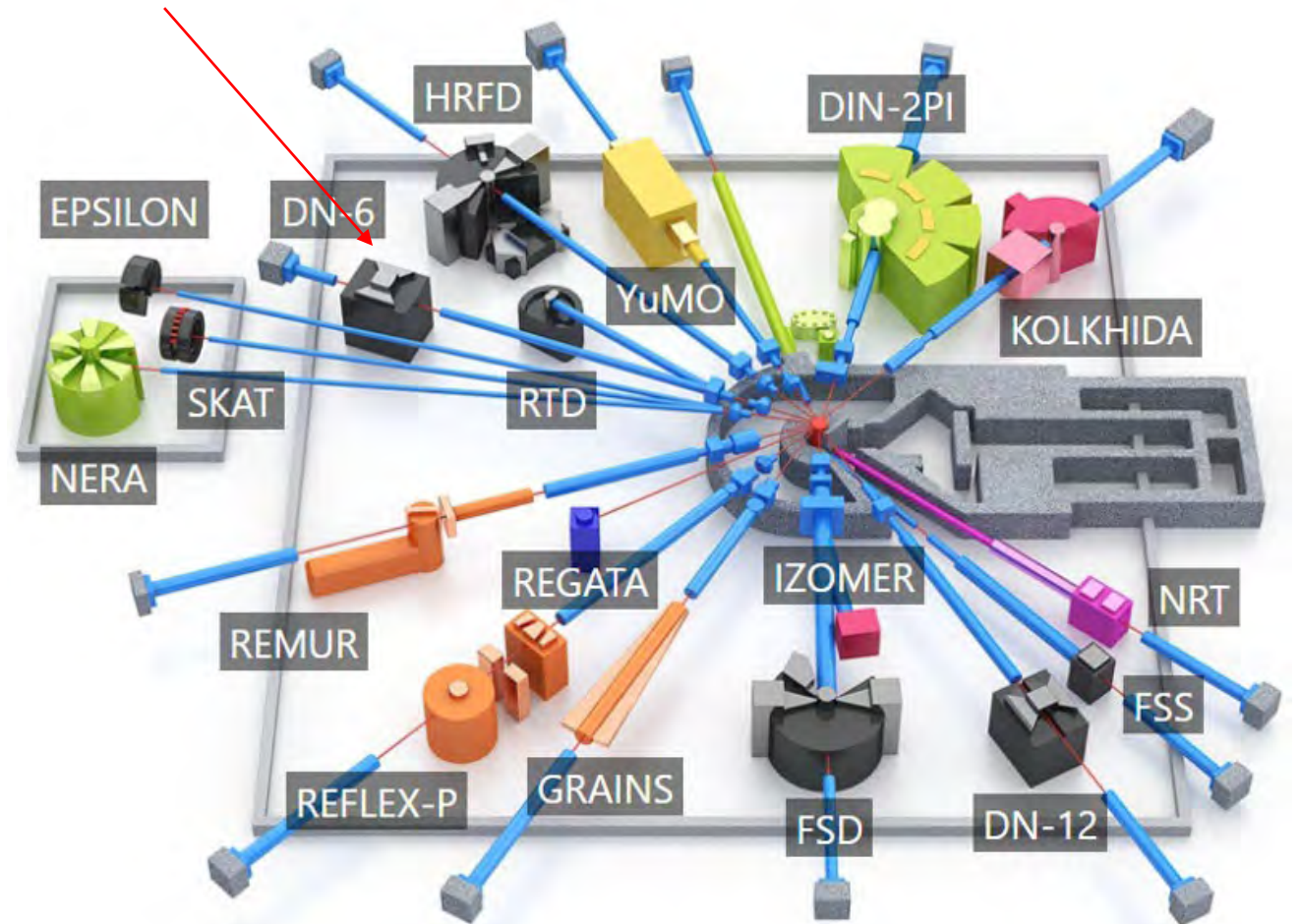
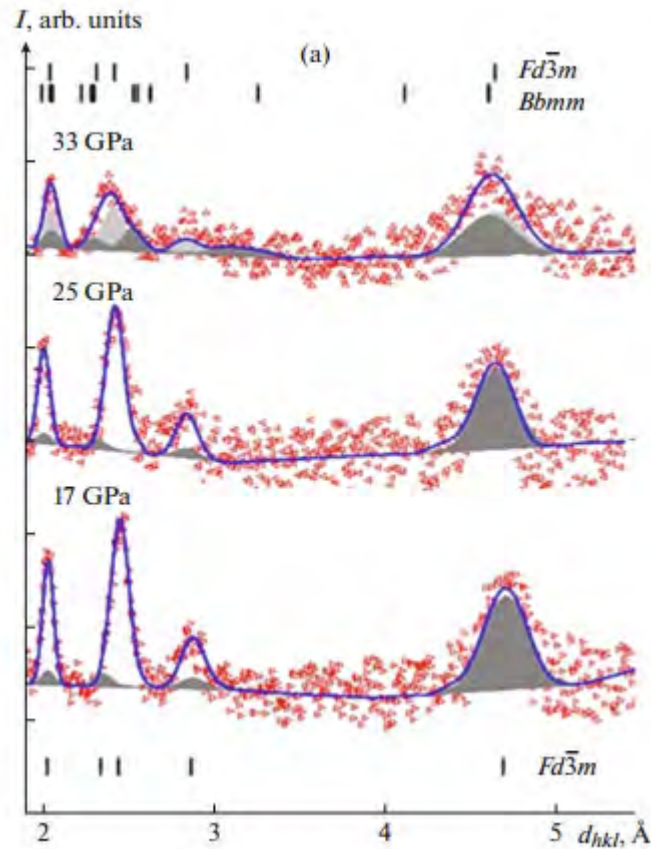


- 35 % (internal proposals)
- 55 % (external regular proposals)
- 10 % (external urgent beam time requests)

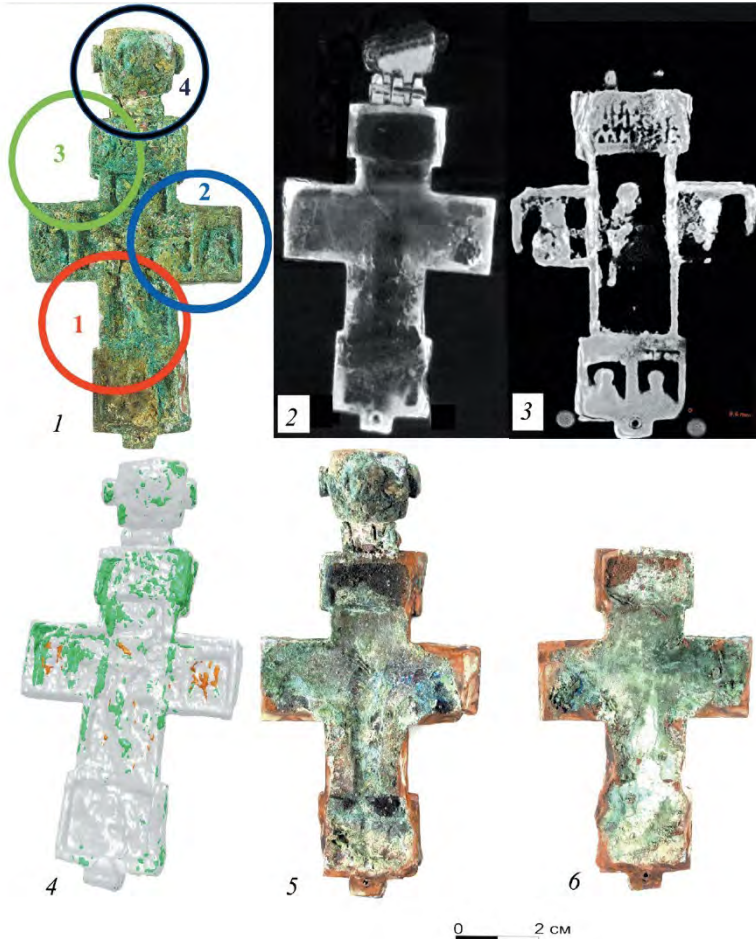
IBR-2 Experimental hall

## DN-6, IBR-2, JINR, Dubna

Next cycle: September 20 - October 2, 2021

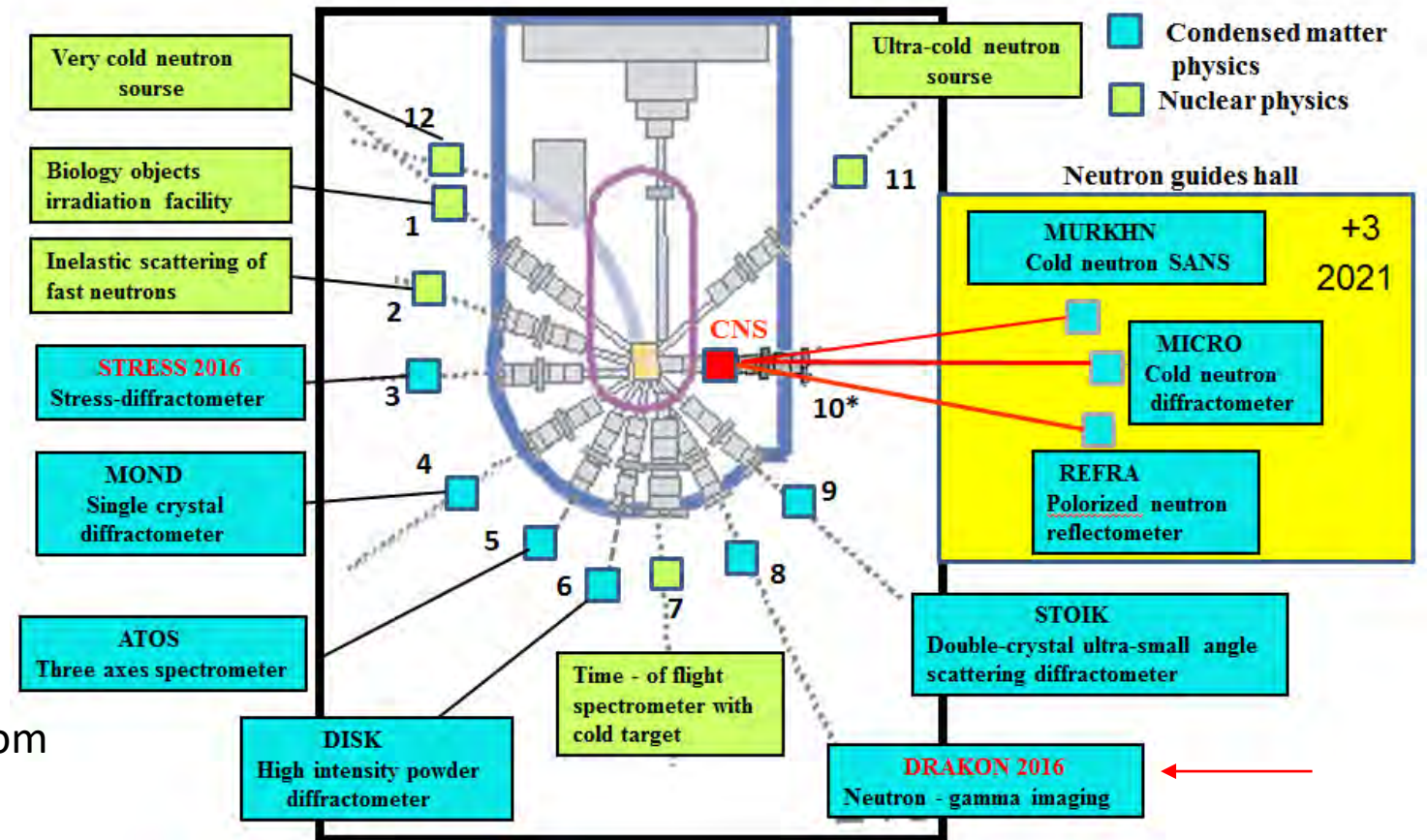






E.A. Greshnikov et al «Study of a reliquary cross from the Novodevichy Convent with natural science techniques» Russian Archeology 4, 165 (2020)

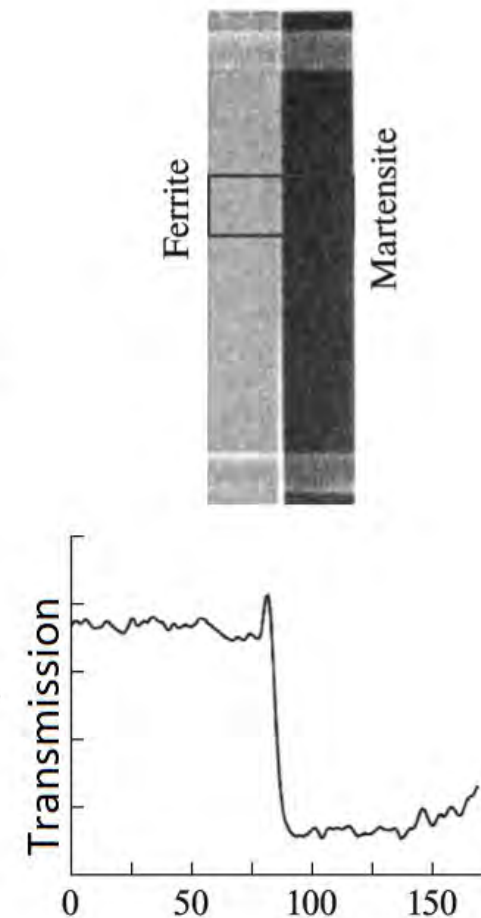
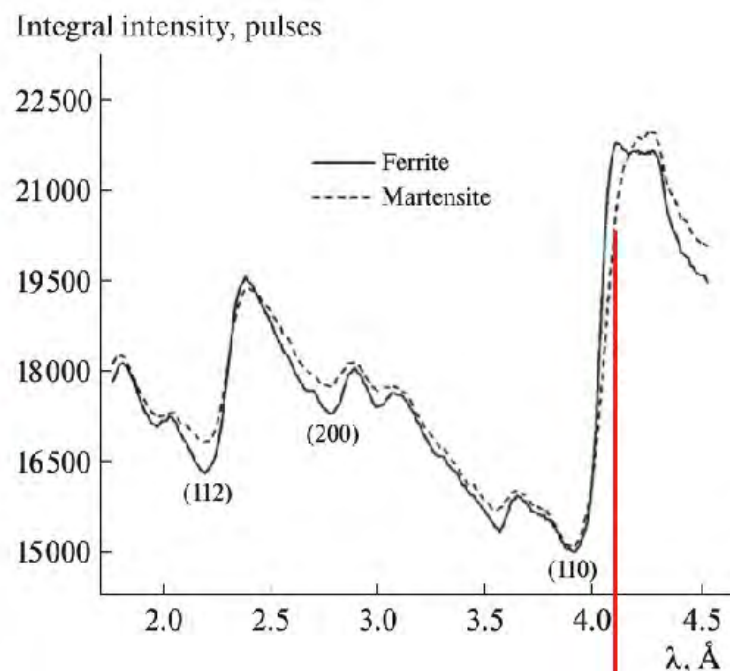
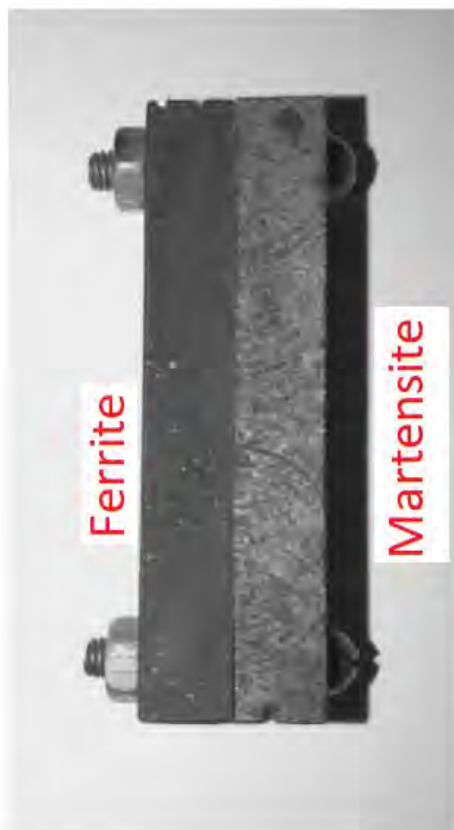
## IR-8 Experimental hall



## DRAGON: Tomography station on the monochromatic beam

Ferrite:  
bcc structure  $a=2.86 \text{ \AA}$

Martensite:  
bct structure  
 $a = 2.83 \text{ \AA}$  and  $c = 3.08 \text{ \AA}$





NMSF at the IVV-2M, 15 MW  
Started operation in 2021 after ~4 years shut down

IVV-2M Experimental hall



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Journal of Nuclear Materials

journal homepage: [www.elsevier.com/locate/jnucmat](http://www.elsevier.com/locate/jnucmat)

## Neutron diffraction study of samples of fuel element claddings made of austenitic steel

V.I. Voronin

M.N. Miheev Institute of Metal Physics of Ural Branch of Russian Academy of Sciences, G20108, Ekaterinburg, S.Kovalevskaya Str, Bld.18, Russia



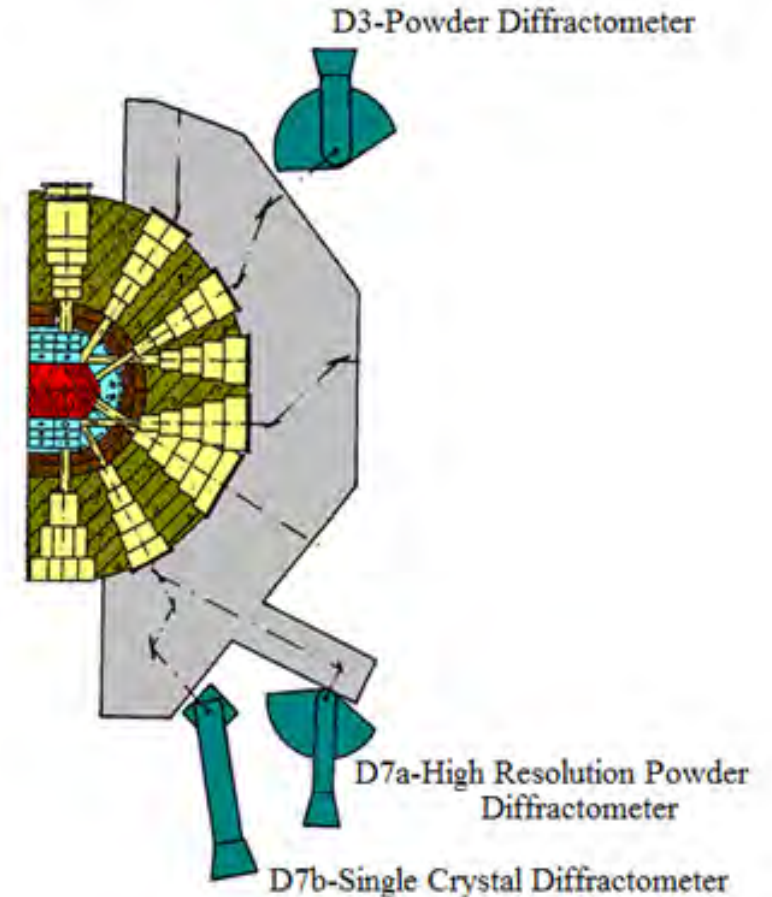
### ARTICLE INFO

**Article history:**  
Received 7 August 2020  
Revised 6 January 2021  
Accepted 7 January 2021  
Available online 11 January 2021

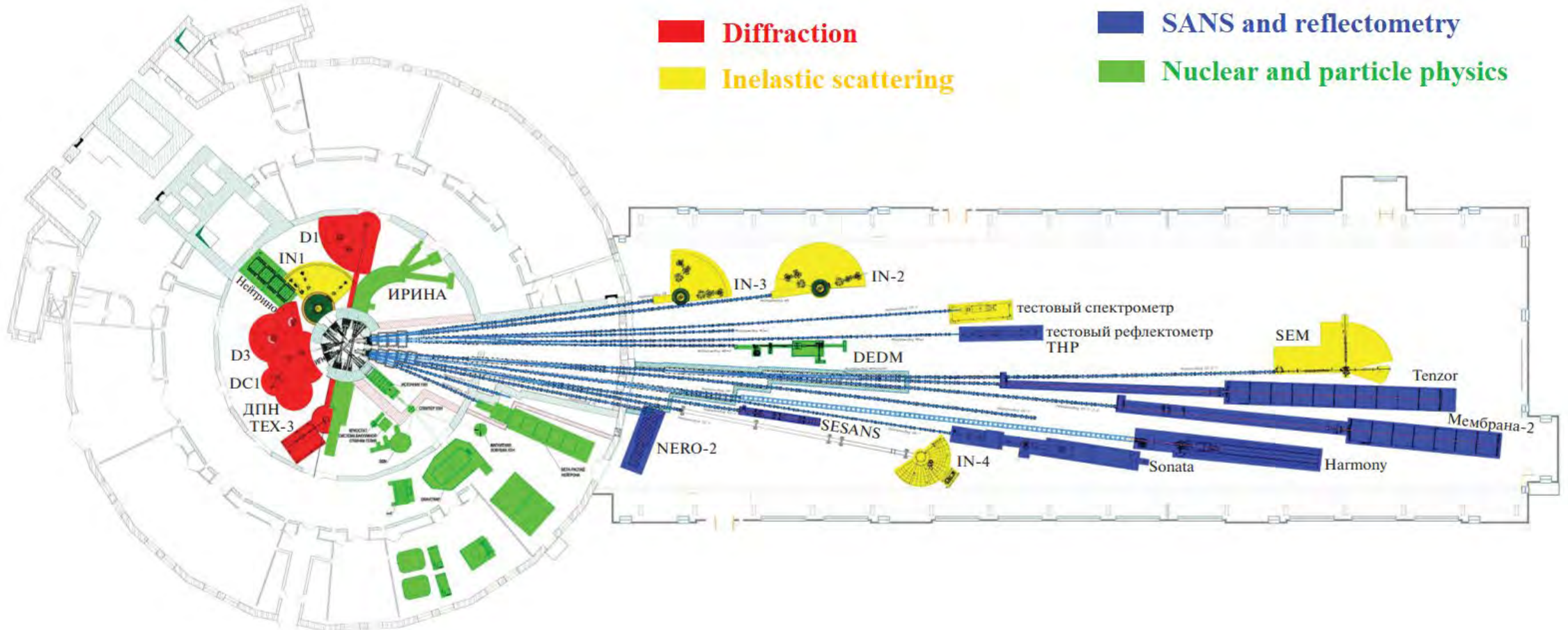
**Keywords:**  
Fast-neutron BN-600 reactor  
Fuel elements  
Radiation induced processes  
neutron diffraction

### ABSTRACT

The paper presents the results of investigation of the performance of industrial fuel elements operating in the active zone of a fast-neutron reactor BN-600. As a continuation of previous works, we have studied fuel elements made of austenitic steel EK-164 after their irradiation under a maximal dose of 72.3 dpa at temperatures ranging from 370 to 628 °C. As in the earlier work on studying spent fuel elements fabricated from standard steel ChS-68, neutron-diffraction method was used that demonstrates a number of advantages over traditional methods, in particular, it is the least-exposing workers to radiation hazards and most suitable for studying bulk irradiated materials. Based on the experience gained, some quite typical microstructure distortions arisen under irradiation were revealed, changes in the density and type of dislocations depending on the dose and temperature were determined, and the dominant role of temperature at high doses of fast neutrons was confirmed. The behavior of EK-164 steel samples selected from different series is shown to depend on their initial structural state.

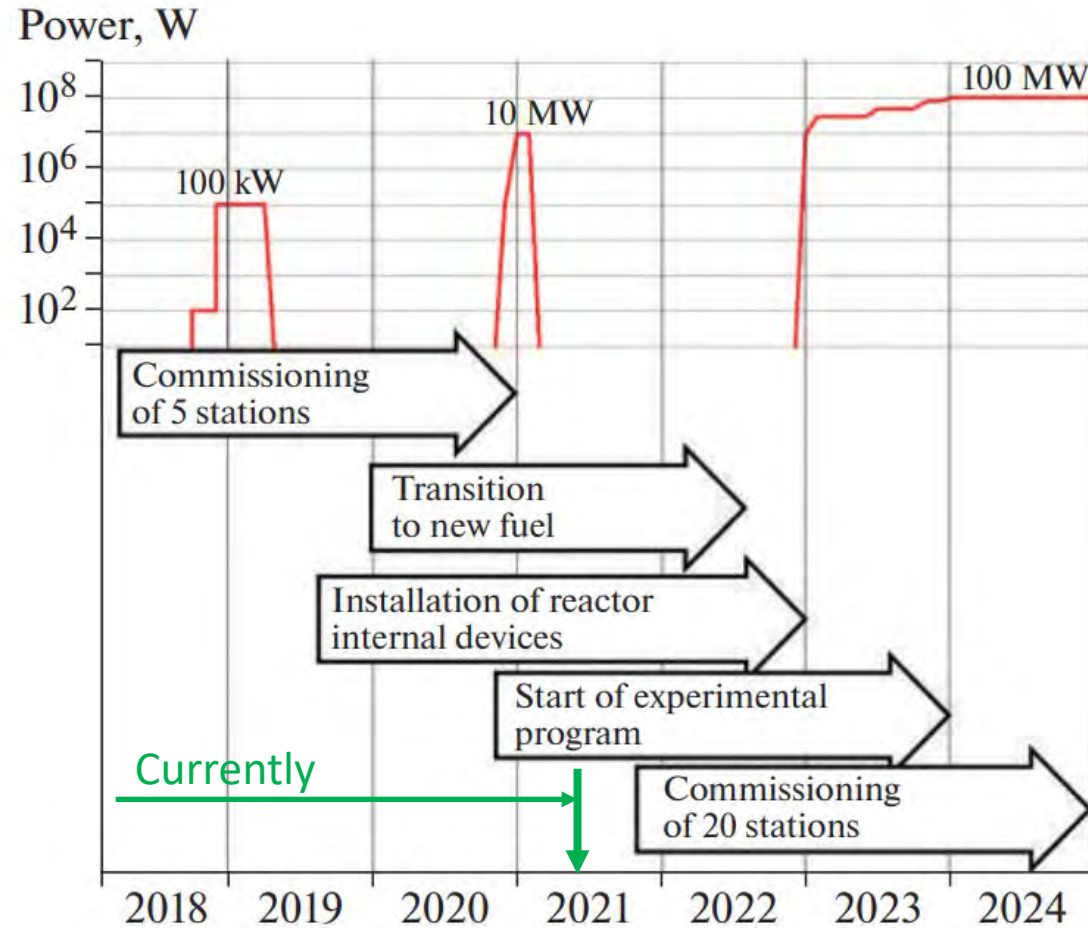


## Reactor PIK 100 MW, PNPI, Gatchina





## Reactor PIK roadmap, PNPI, Gatchina



## Conferences:

All-Russia Conference “Neutron Scattering in Condensed Matter Research” (RNIKS-2021), which will be held in Yekaterinburg from September 27 to October 1, 2021.

~200 abstracts were submitted up to date

<http://rniks2021.imp.uran.ru/?q=en>



КОНФЕРЕНЦИЯ ПО ИСПОЛЬЗОВАНИЮ РАССЕЯНИЯ НЕЙТРОНОВ  
В ИССЛЕДОВАНИИ КОНДЕНСИРОВАННЫХ СРЕД (РНИКС-2021)

→ → → Екатеринбург, 27 сентября – 1 октября 2021 г. ← ← ←

Thank you for your attention!