

As of November 2020

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

**Website maintains**

July. 8 - Updated on Board and Committee.

**Budget**

Issue receipts of Annual Fee by secretary's name.

Confirm and update deposit / withdrawal of the bank account as required.

**Collecting Annual Fee (membership fee 2020)**

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.

# AONSA Conference 2023

Date: **Nov 13-18,2023**

Venue: Royal Garden Hotel, Dongguan, China

No. of Participants: **300+**

Registration fee (including meals):

General: **750 USD/person**

Student/Retired: **400 USD/person**

Banquet optional: **50 USD/person**



Hotel	Rooms	Fee(USD/day)
Royal Garden	555	75-90
ASCOTT	~300	70-80
Citadines	~200	50-60



# Preparation for AOCNS-2023 (Nov 13-17 or 20-24)

AOCNS Executive Committee  
International Advisory Committee  
Scientific Program Committee

Local Organising Committee

International Advisory Committee  
Scientific Program Committee

AOCNS Executive Committee  
International Advisory Committee

Website Publishes July 2022

Call for Abstracts October 2022  
Call for Exhibitions

Registration Opens February 2023

Call for pre-workshop April 2023  
Call for satellite Meetings

Abstracts Closes July 2023

Early-bird Registration Closes August 2023

All Calls Close September 2023

Registration Closes October 2023

Conference 13-17 Nov, 2023



# AONSA Conference 2023

Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
Registration	Opening	Plenary Lecture	Plenary Lecture	Plenary Lecture	Plenary Lecture	CSNS Tour
	Plenary Lecture					
	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	
	Scientific Sessions(1, 2, 3, 4)	Scientific Sessions(5, 6, 7, 8)	Scientific Sessions(1, 2, 3, 4)	Scientific Sessions(5, 6, 7, 8)	AONSA Prize	
	Lunch	Lunch	Lunch	Lunch	Closing	
Executive Committee Meeting	Scientific Sessions(1, 2, 3, 4)	Scientific Sessions(5, 6, 7, 8)	Scientific Sessions(1, 2, 3, 4)	Scientific Sessions(5, 6, 7, 8)		
Instrument Scientist Workshop (1,2,3,4,5,6)	Scientific Sessions(1, 2, 3, 4)	Scientific Sessions(5, 6, 7, 8)	Scientific Sessions(1, 2, 3, 4)	Scientific Sessions(5, 6, 7, 8)		
	Poster	Poster	Bauquet			

# AONSA Conference 2023

## Executive Committee

## Instrument Scientist Workshop

1. Diffractometer
2. SANS
3. Reflectometry
4. Inelastic Scattering
5. Imaging
6. Others

## Scientific Programs

1. Condensed Matter Physics
2. Materials Science and Chemistry
3. Soft Matter Systems
4. Engineering and Industrial Applications
5. Fundamental Physics
6. Sources, Methods and Techniques

# AONSA Neutron School 2021

Date: **Oct 25-31, 2021**

Venue: **CSNS Campus**, Dongguan, China

No. of Students: **40** (20 from China)

Registration fee: **400 USD** (including accommodation & meals)



	day 1	day 2	day 3	day 4	day 5	day 6	day 7	
8:00								
8:20		Registration						
9:00		Opening						
9:30		Neutron Source & Scattering	Fundamental of SANS	Neutron Experiment in 3 Groups	Neutron Experiment in 3 Groups	Presentation Preparation in 6 Groups	Report in 6 Groups	
10:00								
10:30		Coffee & Group Photo	Coffee & Discussion					
11:00		Safety and User Training	SANS & Data Analysis				Closing	
11:30								
12:00		Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	
12:30								
13:00	Registration	Lecture 1						
13:30			Lecture 2	Lecture 3	Lecture 4	Lecture 5		
14:00			Fundamental of Neutron Powder Diffraction	Fundamental of Neutron Reflectometry				
14:30			Coffee & Discussion	Coffee & Discussion	Data Analysis	Data Analysis	Tour	
15:00								
15:30		Neutron Powder Diffractometer and Data Analysis	Neutron Reflectometry and Data Analysis					
16:00								
16:30								
17:00		Dinner	Dinner					
17:30								
18:00	Reception	Guide to User System	Guide to Data System	Party	Party	Banquet		
18:30								
19:00			Introduction	Group Assignment				
19:30								
20:00								

Report for the YRF 2021 selection  
2020/11/28 AONSA EC meeting

YRF 2021 selection committee:

K. Rule (ANBUG), K. Sun (CNSS), E. G. Putra (INSS), T. J. Sato (Chair, JSNS), K.-Y. Kim (KNBUA),  
K. G. Suresh (NSSI), W.-H. Li (TWNSS)

## 1. Procedure

2020/07/08: Call for applications for the AONSA Young Research Fellow is distributed to the member society. (Also included in the AONSA News Letter.)

2020/08/31: Call for applications closed. (Four applications were received.)

2020/09/01-2020/11/16: Discussion was done. Four leading reviewers kindly provided detailed reviews on candidates, and email discussion was done based on the application forms, research plans, recommendation letters and review reports.

2020/11/21: Electronic vote closed.

2020/11/22: Facility directors were unofficially consulted about the selected provisional candidates.

## 2. Reviews on the selected candidates

### 2.1 Dr. Teng Lu

Research Project: The order-disorder feature and lattice dynamics in silver niobate-based materials

Visiting Facility and Instrument: J-PARC AMATERAS

Review Comment: Dr. Lu has gained experience in using neutrons through his training as a Ph.D student and postdoc at ANU, and published 28 journal papers. They are from short-term experiment at ANSTO, and definitely long stay at a neutron facility will enhance his skill and understanding in neutron scattering, giving a step further as an expert. The research plan, inelastic study on the AgNbO<sub>3</sub>-based materials, is well thought out, and promising. Dr. Lu meets the criterion as YRF of AONSA.

### 2.2 Dr. Indri Badria Adilina

Research Project: Neutron scattering studies of the nanoparticle-protein interaction on modified geothermal silica

Visiting Facility and Instrument: ANSTO QUOKKA/PERICAN/EMU

Review Comment: Dr. Adilina has a very strong background in chemistry and had experience in neutron scattering on studying catalysts using inelastic scattering at ISIS. As a young researcher, her

experience in conducting experiments with neutron facilities in the Asia-Pacific region will certainly make it easier for her to increase her capacity and ability to develop research. The research plan, SANS and QENS for structural arrangement and dynamics of proteins in highly complex systems with silica nanoparticles, might have some difficulty to conduct. In particular, the transferring biological samples may not be easy. Candidate should have deep prior discussion with facility before starting YRF. Nonetheless, the committee recognizes that the idea of developing new catalyst or biosensor utilizing interactions between proteins and silica nanoparticles is very interesting. Dr. Adilina meets the criterion as YRF of AONSA.

## 2.2 Dr. Rezwanul Haque

Research Project: Exploring the Mechanical Properties of Pb-Free SAC-305 Solder with Bi Additions  
Visiting Facility and Instrument: CSNS SANS/MPR

Review Comment: Dr. Haque has a lot of experiences and education in mechanical engineering, and also has high success rates in applying for neutron scattering beamtime at ANSTO. He appears to be highly engaged with his community with a number of collaborations with different organisations (Australia Zoo, Henrob Australiz, Weir Minerals Multiflo), and also reviewing/educational responsibilities, and active committee participations. The research project, exploring mechanical properties of Pb-free solder, is interesting, but not clear why he needs CNCS neutron source; any powder diffraction/SANS (including ANSTO ones) may be applicable. From different perspective, though, the proposed project can be definitely done at CNCS, and an experience at CNCS as a long-term visitor will definitely benefit his future career development. Dr. Haque meets the criterion as YRF of AONSA.



Report for the AONSA Prize 2021 selection  
2020/11/28 AONSA EC meeting

Selection Committee for the AONSA Prize 2021:

A. Paradowska (ANBUG), F. Wang (CNSS), Darminto (INSS), T. J. Sato (Chair, JSNS), S.-M. Choi (KNBUA), D. Pandey (NSSI), Hsiung Chou (TWNSS)

1. Procedure

2020/07/08: Call for nominations for the AONSA Prize is distributed to the member societies. (Also included in the AONSA News Letter.)

2020/08/31: Call for nominations closed. (Three new nominations were received, and one continuous nomination was transferred to the present selection committee.)

2020/09/01-2020/11/14: Review of nomination documents was done by each committee member. In addition, for each nominee, a leading reviewer is assigned, who is supposed to introduce scientific and other achievement of the nominee at the video conference.

2020/11/15: AONSA Prize Selection Committee Meeting (Video Conference)

2020/11/19: Electronic vote (first round) started.

2020/11/25: Electronic vote (first round) closed, and electronic vote (second round) started with top two nominees.

2020/11/26: Electronic vote (second round) finished. SC unanimously nominates Prof. Dr. Robert A. Robinson for the AONSA Prize 2021.

## 2. Review on the selected nominee

Prof. Dr. Robert A. Robinson received his Ph. D from Cambridge University, working with Prof. G. L. Squires. Then, he joined Los Alamos National Laboratory (LANL) in 1982 as a postdoctoral research fellow. He was then promoted to technical staff member at LANL in 1985, and stayed there until he moved to Australia in 1999, appointed to the Australian Nuclear Science and Technology Organisation (ANSTO) to lead the Neutron Scattering and Synchrotron Radiation Group. Prof. Robinson established the Bragg Institute at ANSTO in 2002, serving as head until he retired in 2016.

In his early carrier stage, Prof. Robinson accomplished a number of seminal works in the field of condensed matter physics. They include the celebrated discovery of quantum critical E/T scaling in the non-Fermi-liquid compound  $UCu_5-xPdx$ , and detailed quantitative determination of interacting Hamiltonian in the  $Mn_12$ -acetate, a very fundamental information to elucidate the quantum tunneling of magnetization in the molecular magnet. These highly-influential achievements gives Prof. Robinson an international reputation as an outstanding neutron scientist, and led him to establish world-class neutron facility in Australia.

As a facility director, Prof. Robinson showed unparalleled accomplishment, an establishment of world class neutron facility in Australia almost from scratch. To do this, he recruited, hired, mentored and led a cadre of talented young scientists, who now lead neutron science not only in the Asia-Oceania region, but also worldwide. This development of young talent within ANSTO is definitely beneficial to the neutron community in Australia, as well as in Asia-Oceania region. He revitalized the Australian Neutron Beam Users Group, and brought the International Conference on Neutron Scattering to Sydney in 2015. Prof. Robinson was a founding partner in the formation of the Asia-Oceania Neutron Scattering Association (AONSA), and was an inaugural chair of its Facility Directors' Meeting (FDM). This way, Prof. Robinson worked tirelessly to develop neutron scattering community in the Asia-Oceania region, which turns out to be very fruitful as we enjoy now.

As briefly summarized in the above, the scientific achievement and contributions to the development of neutron community of Prof. Robinson are both outstanding, and lead significant impact to the neutron science in Asia-Oceania region. The selection committee unanimously nominates Prof. Robert A Robinson for the AONSA Prize 2021.



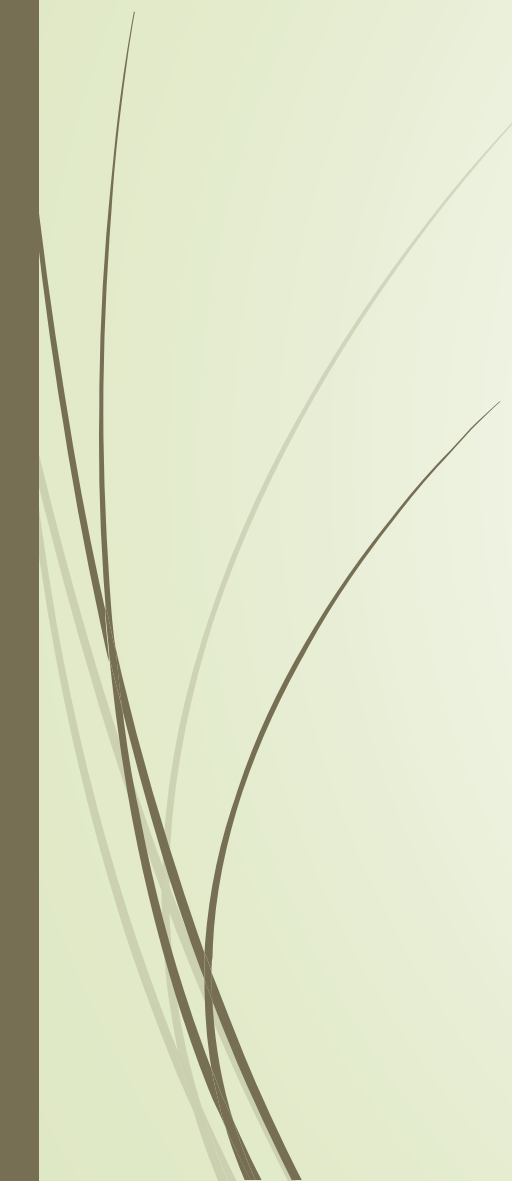
# Public Relation Report

from 2020/06/19 to 2020/11/17

2019/11/18 AONSA EC Meeting Online Zoom  
David Cortie (University of Wollongong)



# Overview

- Updates to website content
  - Update to executive mailing list / contact lists for newsletters
  - Call for content for the next issue of the newsletter
  - Update: new AONSA linkedin profile
- 


# Website activities

- 2020-19-06 – updated newsletter and prize information
- 2020-16-11 – fixed various broken or inactive links
  - Fixed ANBUG link (broken, old [www.anbug.org](http://www.anbug.org), new [www.anbug.net](http://www.anbug.net))
  - NSSI (Neutron Scattering Society of India) – old <http://www.nssi.iitm.ac.in/>, new <http://nssi.org.in/>
  - Changed Japanese Neutron Society – old (<https://www.jsns.net/jp>), new link <https://www.jsns.net>
  - ENSA - <http://www.unizar.es/ensa/> new: <http://www.neutrons-ensa.eu/>
- Broken links: can anyone provide some details?
  - Current link to [INSS](#) (The Indonesian Neutron Scattering Society) – broken,
  - [KNBUA](#) (The Korean Neutron Beam Users Association)
- 2020-16-11 – Modified mailing list to remove Prof Ko-wei Lin (outgoing TWNSS president) with incoming president ( **Prof. Chun-Chuen Yang**)



# Website activities

- ▶ Currently no links to facilities. Shall we add these?
- 



# Internal mailing list (executive members)

- 2020-16-11 – Modified mailing list to remove Prof Ko-wei Lin (outgoing TWNSS president) with incoming president ( **Prof. Chun-Chuen Yang**)

# Privacy issues on the website

- ▶ Our emails are public ally available. I suspect this is why we have been targeted by the phishing schemes.
- ▶ I suggest remove our emails from the public page, and setup a new email to direct all enquiries?
- ▶ We could setup a password protected part of the AONSA page for exec members only which has private details for us to share.

**AONSA Executive Committee (Jan. 1, 2020- Dec. 31, 2021)**

ANBUG	Name	Affiliation	E-mail
Member #1	Tracy Rushmer	Macquarie University	<a href="mailto:tracy.rushmer@mq.edu.au">tracy.rushmer@mq.edu.au</a>
Member #2	Yun Liu	Australian National University	<a href="mailto:yun.liu@anu.edu.au">yun.liu@anu.edu.au</a>
Observer#1	Jamie Schulz	ANSTO	<a href="mailto:jys@ansto.gov.au">jys@ansto.gov.au</a>

CNSS	Name	Affiliation	E-mail
Member #1	Dongfeng Chen	CIAE	<a href="mailto:dongfeng@ciae.ac.cn">dongfeng@ciae.ac.cn</a>
Member #2	Hesheng Chen	IHEP	<a href="mailto:chenhs@ihep.ac.cn">chenhs@ihep.ac.cn</a>
Observer#1	Yuntao Liu	CARR	<a href="mailto:yliu@ciae.ac.cn">yliu@ciae.ac.cn</a>
Observer#2	Fangwei Wang	CSNS	<a href="mailto:fwang@iphy.ihp.ac.cn">fwang@iphy.ihp.ac.cn</a>
Observer#3	Jian Gong	CMRR	

INSS	Name	Affiliation	E-mail
Member #1	Darminto	Institute of Technology, Surabaya	<a href="mailto:darminto@its.ac.id">darminto@its.ac.id</a>



# Survey of AONSA communications channels:

- ▶ Wordpress website: <http://aonsa.org/>
- ▶ Regular newsletter <http://aonsa.org/aonsa-newsletters/>

- ▶ Social media presence?

*Seeking EG approval to activate  
new AONSA profile*


- ▶ Mailing list

*Internal member mailing list to coordinate newsletter and EC meetings*





# News letter and web site

- ▶ AONSA News Letter Vol.11 was uploaded February 2020 (Thanks to Taku Sato)
  - ▶ Currently issuing call for new content for next edition.
- 

# The next AONSA newsletter

- ▶ To be issued in February/March 2020

**Deadline: 15 January, 2020**

- ▶ Tentative Contents:
  - 1 President's message ([Dongfeng Chen](#))
  - 2 Reports on the AONSA EC meeting (Jae-Ho Chung)
  - 3 Neutron facility directors meeting report ([F. Wang](#))
  - 4 AONSA Prize ([Taku Sato](#))
  - 5 AONSA Young Research Fellows ([Taku Sato](#))
  - 6 AONSA Neutron School ([F. Wang](#))

[dcortie@uow.edu.au](mailto:dcortie@uow.edu.au)

7 Reports from neutron associations

- ANBUG ([Y. Liu](#))
- CNSS ([D. Chen](#))
- INSS (Darminto)
- JSNS (K Kakurai)
- KNUBA ([J.-H. Chung](#))
- NSSI (S. M. Yusuf)
- TWNSS (**Prof. Chun-Chuen Yang**)
- Thailand (T. Rattanawongwiboon)
- Malaysia (A. A. Mohamed)

8 Reports from neutron facilities

- J-PARC ([T. Otomo](#))
- JRR-3 ([M. Takeda](#))
- ANSTO (J. Schulz)
- KAERI ([Wanchuk Woo](#))
- CARR ([T Li/Kai Sun](#))
- CSNS ([F. Wang](#))
- National facility for neutron beam research (India) (S. M. Yusuf)
- BATAN (I. Sumirat)

9 Other reports which are given at the EC meeting.

# The 20<sup>th</sup> Facility Directors Meeting

Date: Friday 27th November, 2020

Time: Sydney 2:00 pm; Japan & Korea 12:00 pm; China 11:00 am; Indonesia 10:00 am; India  
8:30 am.

Duration time: 4:10 (without a break)

Location: ZOOM internet conference



c.c.huang



Kenji Nakajima



Jamie Schulz (ANSTO)



Chun-Chuen Yang



Hsiung Chou



TAKEDA Masayasu



rifai muslim



Taku Sato



Hideki Seto



Toshiya Otomo



Wan-chuck WOO (KAERI)



Apichate Maneewong



Yun Liu



Sun Kai & Chen Dongfeng...



fwwang



加倉井和久



Hesheng Chen



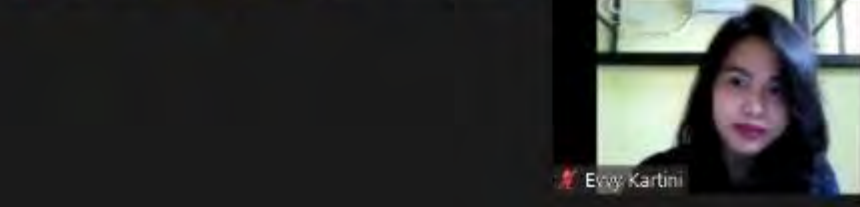
Jae-Ho Chung



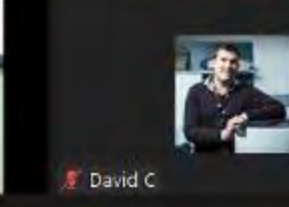
Brendan Kennedy



Vyacheslav Em



Ewy Kartini



David C

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

[Chair]

Kenji Nakajima (J-PARC/JAEA)

[FDM Members]

Wanchuck Woo (HANARO)

Fangwei Wang (CSNS)

Toshiya Otomo (J-PARC/KEK)

Masayasu Takeda (JRR-3/JAEA)

Jamie Schulz (OPAL)

Kai Sun (CARR/CIAE)

P. U. Sastry (DHRUVA)

Rifai Muslih (G. A. Siwabessy)

C. Q. Huang (CMRR)

[EC Board Members]

Dongfeng Chen (President; CNSS, CIAE)

Taku J. Sato (Vice-president; JSNS, Tohoku Univ.)

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

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

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

Brendan Kennedy (Past-president; U. Sydney)

[EC Members]

Hesheng Chen (CNSS, IHEP)

Kazuhisa Kakurai (JSNS, CROSS)

Yun Liu (ANBUG, Australian National U)

Chun-Chuen Yang (TWNSS, CYCU)

Evvy Kartini (INSS, BATAN)

[Observers]

Viacheslav Em (NRCKI)

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

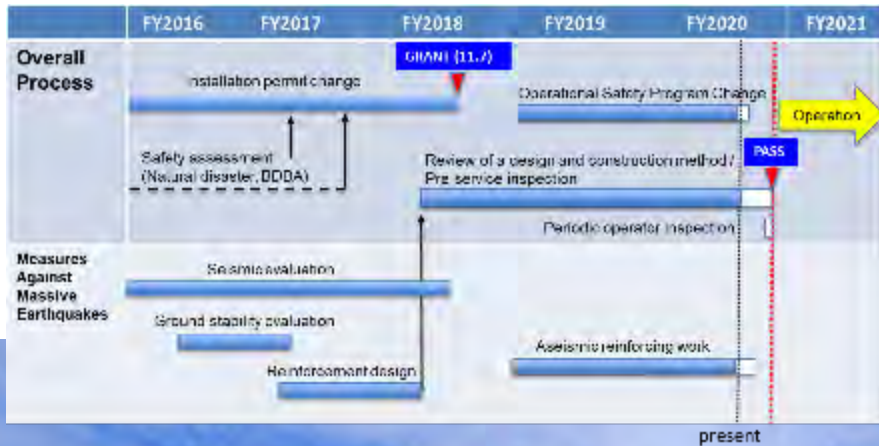
Apichate Maneewong (Thai Community; TINT)

## **Agenda:**

1. Opening remarks
2. Self-introduction of attendees
3. Purpose & Role of the FDM
4. Approval of Agenda
5. Approval of New Observer Member
6. Review of last meeting notes
7. Facility Updates
  - (1) JRR-3 : Masa Takeda
  - (2) J-PARC : Toshiya Otomo
  - (3) CSNS : Fangwei Wang
  - (4) HANARO : Wanchuck Woo
  - (5) OPAL : Jamie Schulz
  - (6) CARR/CIAE : Kai Sun
  - (7) CMRR : C.Q. Huang
  - (8) Dhruva : P. U. Sastry
  - (9) G. A. Siwabessy : Rifai Muslih
  - (10) NRCKI : Viacheslav Em
8. Discussion on the challenges, opportunities and cooperation of neutron facilities
  - (1) Challenges against to the COVID-19 pandemic duration
  - (2) Regulation of FDM membership
9. AONSA Business
  - (1) AONSA Young Research Fellows
  - (2) Next AONSA Neutron School
10. Other business:
  - (1) Next Chair
11. Closing remarks

# Status and Activities of JRR-3

*Masayasu Takeda, and Yoji Murayama (JAEA) ,  
Osamu Yamamuro (ISSP)*



## JAEA

- The reinforcement work is almost finished
- The reactor will restart in the end of February 2021 as scheduled
- Calling for general use proposals

## ISSP

- ISSP continues to support access to international facilities for Japanese researchers (FY2020: 30 persons)
- Call for the proposals was closed and NSPAC will be held in January
- ISSP research activities were carried out at overseas, e.g., ANSTO, NIST, ILL, ORNL, etc.





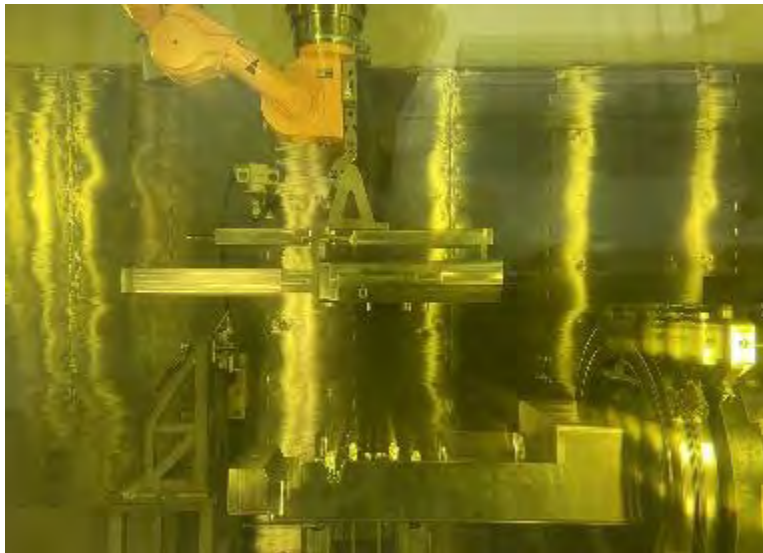


## Summary of J-PARC MLF

- There are several BLs which extends more than 30 days of “carry-over” due to COVID-19
- Total number of 2020B+2021A is more than 450 and competition rate is about 2
- J-PARC is open to foreign users but there are strict conditions for entry into Japan
  - At a minimum, visa and 14-days self-isolation
- Due to the delay in the neutron target maintenance work, MLF user operation will be resumed on **December 1st (Tue.)**, 2020, instead of November 9th, 2020 in the original schedule.

# CSNS Status and Progress

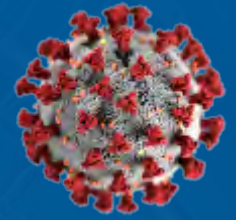
- **CSNS has been run in 100 kW efficiently.**
- **The first target has been successfully replaced in this summer.**
- **The fourth round of user proposals have been completed, and in totally 221 user experiments have been conducted.**
- **More sample environments and user lab were established.**
- **All the insert components of users neutron instruments have been installed in this Summer.**



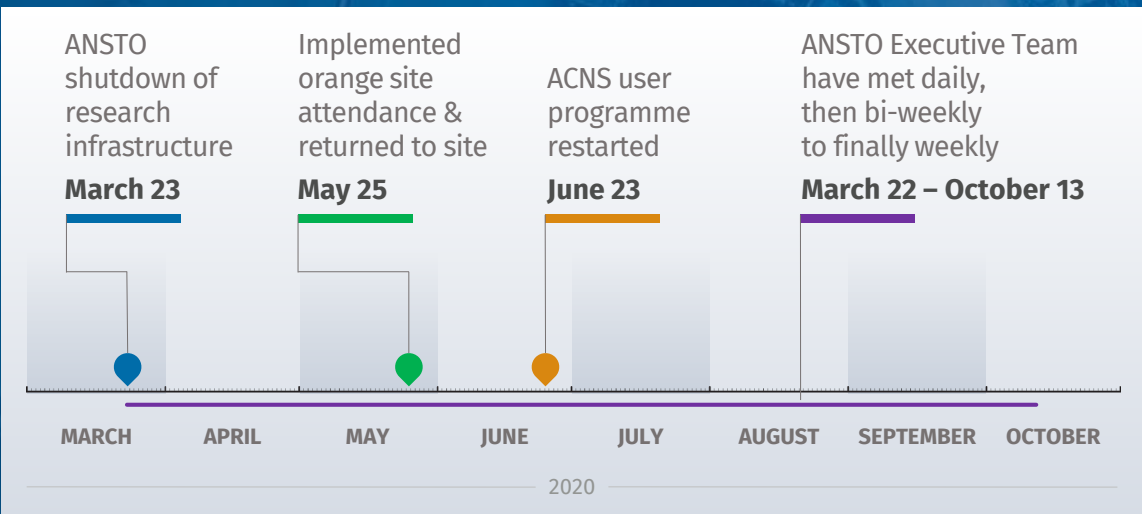
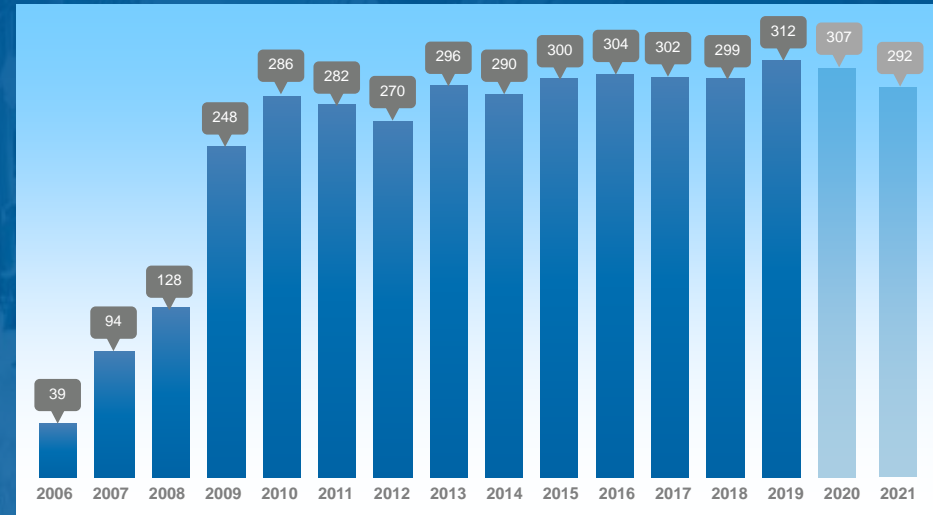
# HANARO by Wanchuck Woo

- HANARO restarted from October 13, 2020. Power was increased step-by-step toward 30 MW. We confirmed the performance, which was same as that obtained in 2014. 100th cycle will start from December 1. User program will be resumed from 2021.
- As action against to the COVID-19 impact, we are considering 'Un-Contact' program. Combining with discussion on Web/video, samples will be send by mail-in service. Number of experiments can be done will be reduced. We also afraid heavy load of beam-line staff.

# ANSTO Status Report - Jamie Schulz



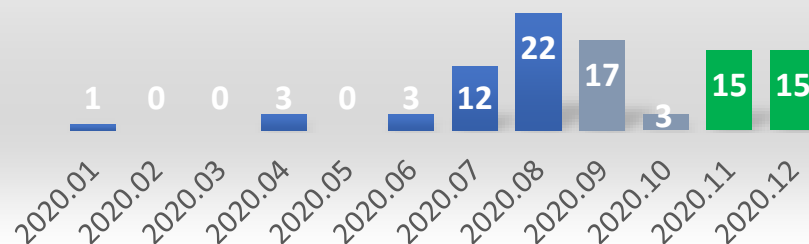
- Reactor & Cold Source both have run well
  - 2.5 Week Reactor Outage November
- TG123 primary shutter replacement April-July 2021 – 3 month outage of Neutron Guide Hall Instruments
- Secured additional funding for instrument upgrades - \$6.7M for FY22 & \$4.2M for FY23
- Taipan return to service in October after 6 month outage
- 50 paper milestones – Pelican, Taipan & Bilby
- Partners on ARC Discovery & Linkage Grants
- Living with COVID-19



## Facilities Report at CARR

- CARR will run ~90 days at ~40MW this year
- 12 instruments are operational and open to users, another two new instruments, TNI and END, will be ready early next year
- Two powder diffractometers(HRPD and HIPD) had been upgraded to improve their performance
- Several in-situ sample environment devices for SANS and TD have been installed and used
- Many scientific and industrial researches, including study on related COVID-19 and high-speed rail wheel, have been carried out

**CARR will run 90 days in 2020  
@~40MW**




**中国原子能科学研究院**  
 CHINA INSTITUTE OF ATOMIC ENERGY  
 CNNC

### Instrumentation and sample environment

double crystal monochromator for neutron image



High temperature creep testing machine for SANS




New furnace for texture diffractometer



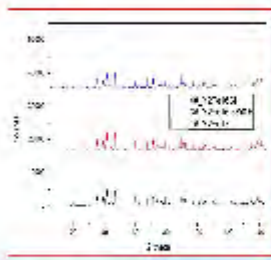


CNNC China National Nuclear Corporation

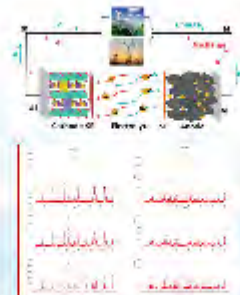

**中国原子能科学研究院**  
 CHINA INSTITUTE OF ATOMIC ENERGY  
 CNNC

### Scientific applications

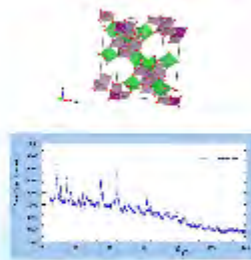
Magnetic materials Si doping  $Y_2Fe_{17}$






Battery materials



Catalytic material  $BaMnMo_4O_{17}$



CNNC China National Nuclear Corporation

# Status of CMRR and facilities



- CMRR run 4705h in 2020, 2074h for public users
- No. of users were more than 100 in 2019
- No. of papers were 58, and proportion of top publications was more than 10% in 2019
- NSTB and USANS will be built in 2020



# Neutron Scattering Facilities Bhabha Atomic Research Centre Mumbai, India

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

**Neutron source type:** Reactor (Dhruva)  
**Reactor Power:** 100 MW (Thermal)  
**Neutron beam instruments (operational) (12)**  
(High-Q diffractometer is being upgraded).

### **Magnetic Ground State of Geometrically Frustrated Quantum Magnets:**

Phys Rev B (Rapid Com.) 101, 140413 (2020)

Phys Rev B 102, 134433 (2020)

**Protein Structure and Interaction in Solution:** IUCrJ  
7, 166 (2020)

### **Interface Roughening in Shale Rocks:**

Int. J. of Coal Geo. 228, 103556 (2020)

**Defects in Highly Neutron Irradiated Graphite from  
CIRUS Reflector:** Phys Rev B 102, 064103 (2020)



**To access information on the  
facilities, please contact:**

**Dr. S.M. Yusuf**  
Head, Solid State Physics Division and  
Associate Director, Physics Group  
Bhabha Atomic Research Center  
Mumbai 400085, INDIA  
Ph: 91-22-25595608, 25595376  
Email: [smyusuf@barc.gov.in](mailto:smyusuf@barc.gov.in),  
[sspd@barc.gov.in](mailto:sspd@barc.gov.in)

# BATAN's Neutron Facility

## Update November 2020 (Resume)

Iwan Sumirat/Refai Muslih  
Neutron Beam Technology Division  
Center for Science and  
Technology of Advanced  
Materials, BATAN



## BATAN's Neutron Facility Update November 2020



- Reactor 15MW, CW, 8 working instruments, 32 staffs, Operations: 150 days/year (avg), Publication:

2017	2018	2019	2020
29	21	30	27



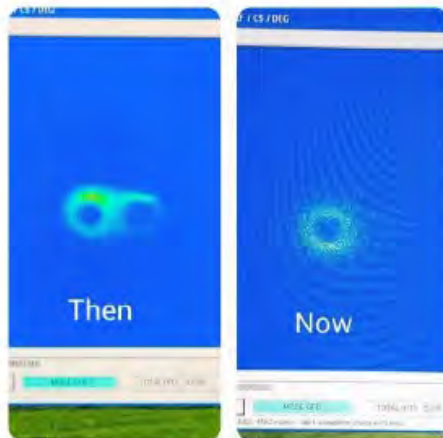
NAA



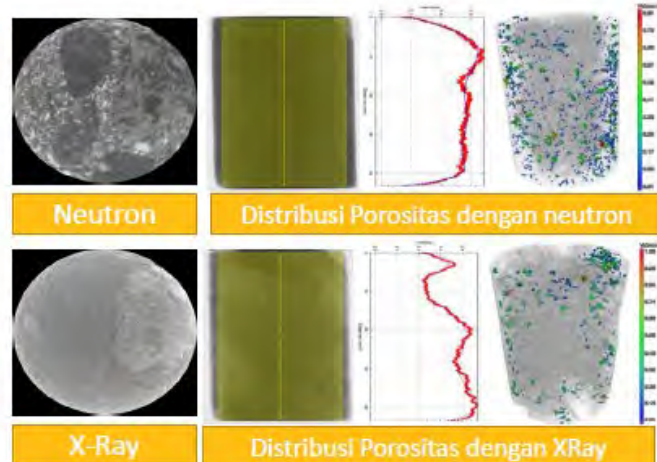
HRPD



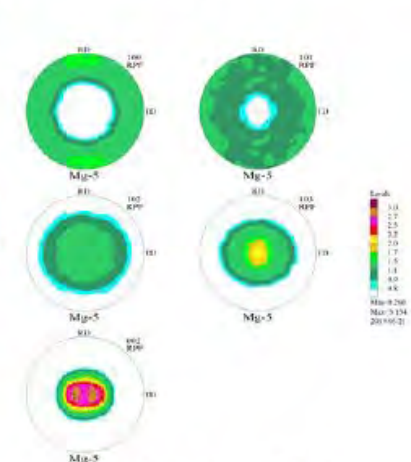
TAS



SANS



Radiography



Texture Dif.

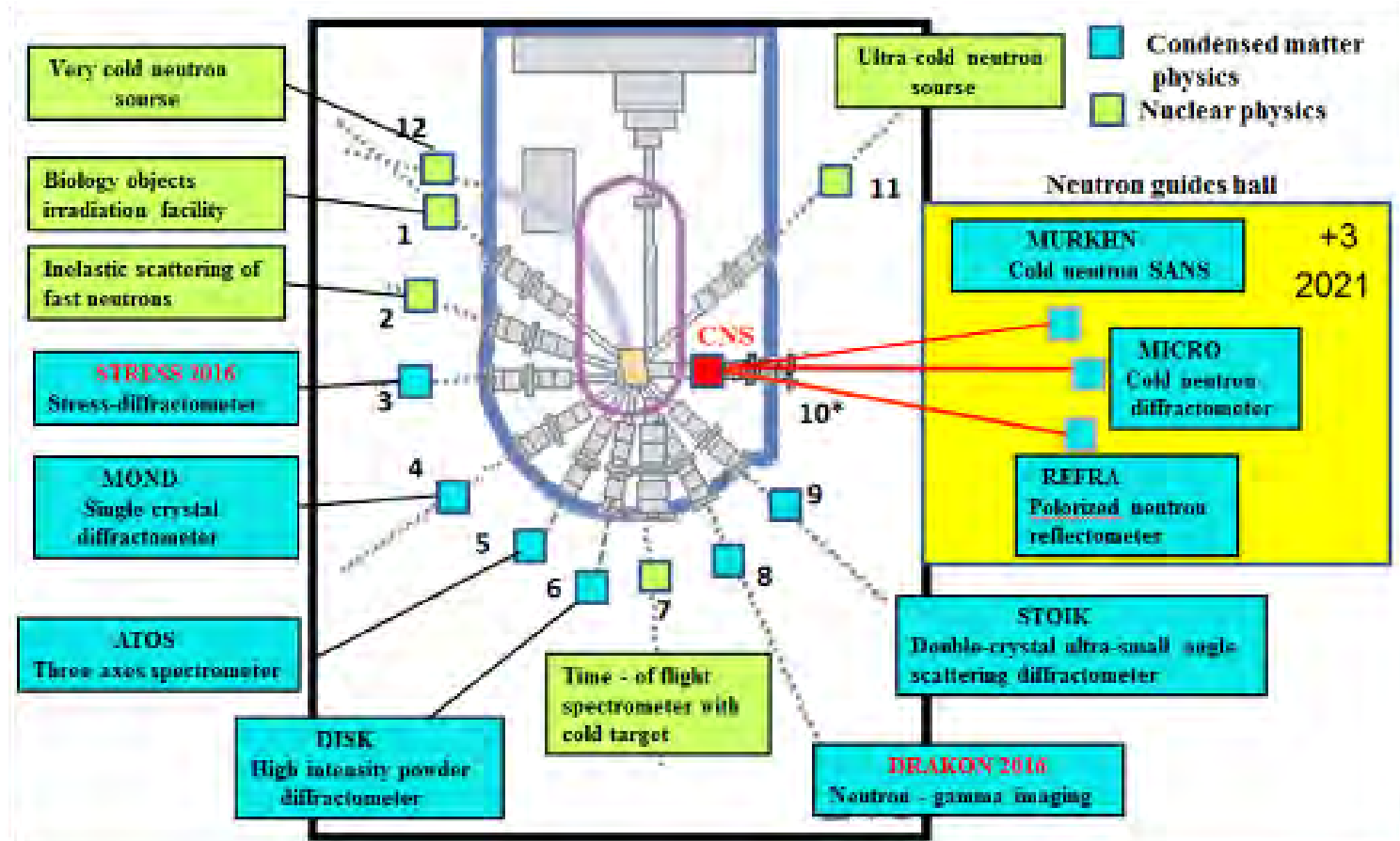






# National Research Center "Kurchatov Institute", reactor IR-8 (8MWt)

IR-8:  $F_{\uparrow} \text{ max} \sim 2 \times 10^{14} \text{ s}^{-1} \text{ cm}^{-2}$  (Be reflector) ;  $F_{\uparrow} \sim 1 \times 10^{10} \text{ s}^{-1} \text{ cm}^{-2}$  (HEC outlet).



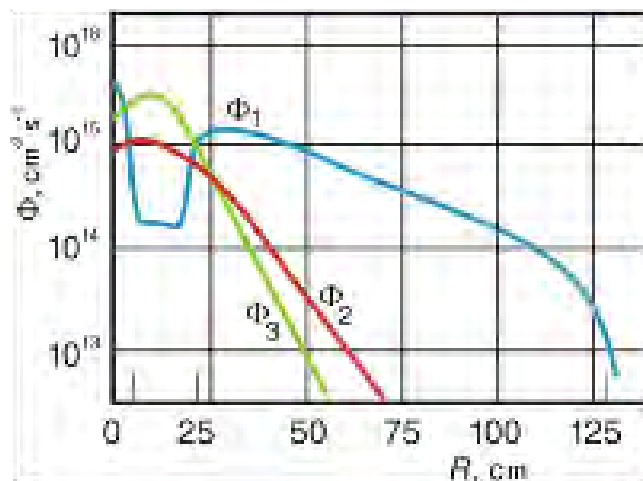
In 2020, the IR-8 reactor operated for only 3 weeks.

1. Replacement of the beam shutters in two horizontal channels (#3,#6).
2. Modernization of cooling tower for cooling water in the secondary circuit.
3. Preparatory works for installation cold neutron source (CNS) in channel #10.

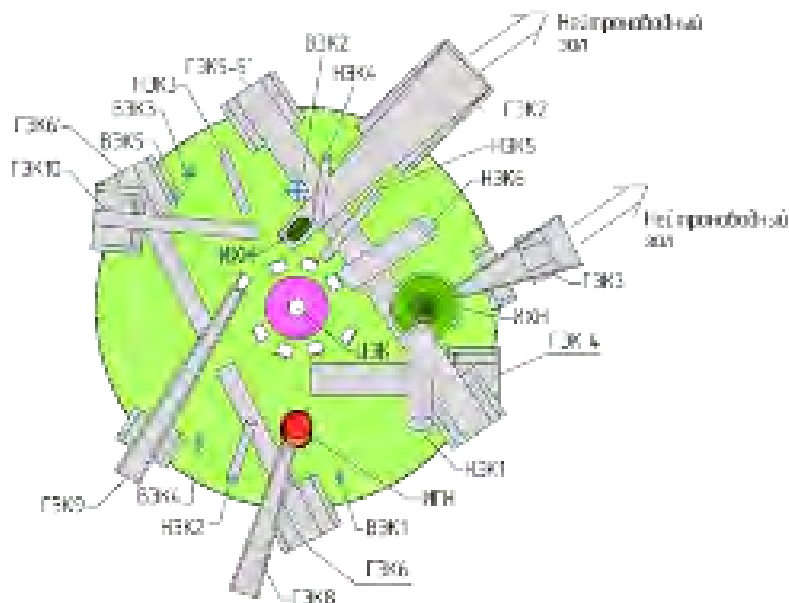


# NRC "Kurchatov Institute" – Petersburg Nuclear Physics Institute, reactor PIK (100 MWt)

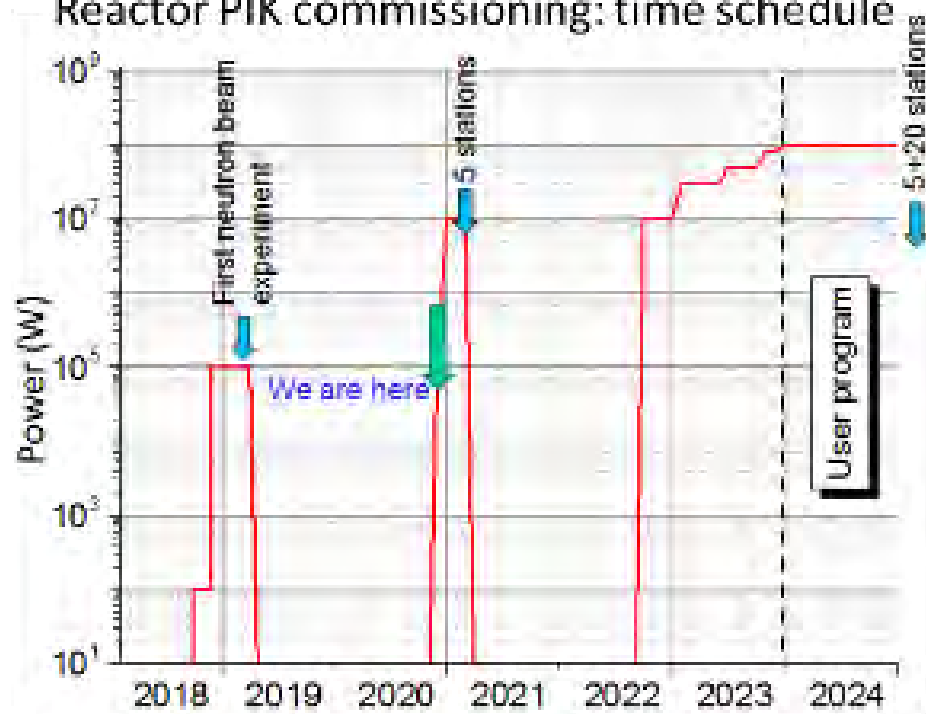
In 2020 five "first-day" instruments were installed in reactor hall of reactor PIK



Neutron flux in moderator	$1.3 \times 10^{15} \text{ n/cm}^2\text{c}$
Neutron flux in central trap	$5 \times 10^{15} \text{ n/cm}^2\text{c}$
Operation cycle	$\sim 30$ day
Experimental channels: Horizontal (HEC) – 9 (1-through), Vertical (VEC) – 6, Inclined (IEC) – 6, Central (CEC) – 1	



## Reactor PIK commissioning: time schedule



# Discussions 1/2

- Challenges against to the COVID-19 pandemic duration
  - All facilities (except JRR-3 and HANARO, which were stopped) are suffered from the COVID-19 pandemic in user program.
  - Facilities in China are getting out from the impact except international user program.
  - Especially, users across the boarder are difficult to accept.
  - Mail-in service and remote-access are possible strategy to take, while they have issues (heavy work of instrumental scientists, reduction of number of possible experiments, soft-ware development, etc.).
  - Many of facilities trying to keep hold workshops, meetings and schools by using on-line services. On-line meeting has benefit to us. Since it is easy to join, we can have larger number of participants, even from the out-side of the community. Supports will be needed to enhance on line activities (technical supports, sharing know-how, sharing the contents). Sharing the information of on-line meetings will be benefit to the AONSA community.

# Discussions 2/2

- Challenges against to the COVID-19 pandemic duration (cont.)
  - The information of the COVID-19 related research activities was shared. Several activities of investigations on SAR-Cov-2 are under going in collaboration with other facilities including non-neutron facilities. Direct access to virus by using neutron probe might be difficult but neutron can do something. There are also the COVID-19 related researches investigating on not virus but on (for example) materials used in medical equipment.
- Regulation of membership of FDM
  - Reconsidering of regulation of membership (roles) of FDM was raised. We will discuss continuously with interactions with AONSA and AONSA EC.

# AONSA Business

- AONSA Young Research Fellow
  - Due to the COVID-19 impact, facilities (ANSTO, CSNS, J-PARC) postpone to accept 2020 fellows. Facilities are considering to accept them soon after when the COVID-19 issue will be solved.
  - Information of 3 fellows for round 2021 was shared. Facilities will accept these candidates.
- AONSA Neutron School
  - 2021 School will be held at CSNS in October.
  - About 2022, we will discuss in the next FDM.

# Next Chair

- KN will act the next chair.

No.	Location	Date	Chair
7th	Daejeon, Korea	20th Feb 2014	Mitsu Shibayama (JRR3)
8th	Serpong, Indonesia	15th, October 2014	Mitsu Shibayama (JRR3)
9th	Sydney, Australia	July 19th, 2015	Yuntao Liu (CARR/CIAE)
10th	Tokai, Japan	3rd Dec 2015	Mitsu Shibayama (JRR3)
11th	Guangdong, China	May 30th, 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	Fangwei Wang (CSNS)
19th	Zoom	19th June 2020	Fangwei Wang (CSNS)
20th	Zoom	27th November 2020	Kenji Nakajima (J-PARC)
21st			Kenji Nakajima (J-PARC)



# Australian Neutron Beam Users' Group

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

Report to AONSA

Tracy Rushmer (past ANBUG President)

Yun Liu (incoming ANBUG President)

Sydney, Australia (via Zoom), November 27-28, 2020



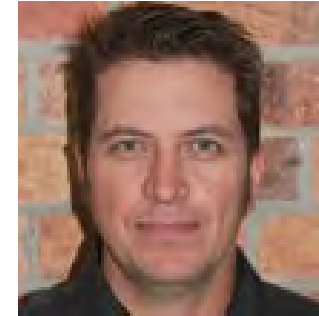
# 2021-2022 ANBUG executive committee



**President**  
Prof Yun Liu  
ANU

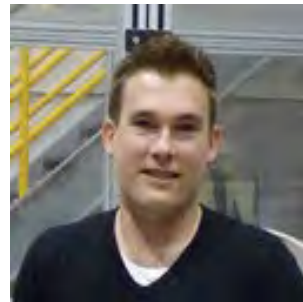


**Past President**  
Prof Tracy Rushmer  
Macquarie University



**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 328 members



**Treasurer**  
Dr David Cortie,  
ANSTO



**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 second half 2020



## **EVENTS:**

- The ANBUG-AINSE Neutron Scattering Symposium, 11th – 13<sup>th</sup> Nov 2020

## **AWARENESS:**

- AANSS and membership drive
- Twitter: ANBUGneutron
- ANBUG email list - updated
- ANBUG newsletters (eg ANCS Scatter Matters)

## **AWARDS AND RECOGNITION:**

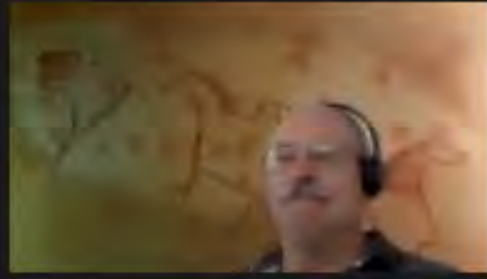
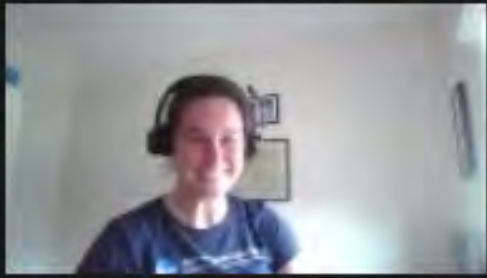
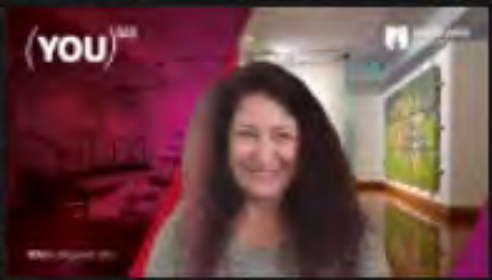
- AANSS Student awards
- ANBUG Prizes (presented at the AANSS)
- Nominations for AONSA awards

## **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



Rao Yepuri



# AANSS 2020 Meeting



- Registration = 168
- Countries = 10
- Speakers = 45
- Posters = 64

Australia	134
Brazil	2
China	4
France	2
India	1
NZ	16
Switzerland	1
Taiwan	2
United Kingdom	2
USA	4

## AANSS Winners – Talks and Posters:

<u>Name</u>	<u>Prize</u>
Lirong Cheng (Massey University)	1 <sup>st</sup> Talk
Maja Dunstan (Melbourne University)	2 <sup>nd</sup> Talk
Olivia Kendell (Monash University)	1 <sup>st</sup> Poster
Junwei Li (Sydney University)	2 <sup>nd</sup> Poster
Katherine Chea (RMIT)	Poster Slam
Gary McIntyre (ANSTO)	Trivia

# AANSS 2020 Meeting

## Presentation of 2020 ANBUG Award Winners



- Prof John White (Career Award)
- Prof Anna Paradowska (Neutron Award)
- Dr David Cortie (Young Scientist Award)
- Dr Damian Goonetilleke (Outstanding PhD Award)

CONGRATULATIONS!



# Australian Neutron Beam Users Group

**FREE**  
to join!

**Student prizes and travel bursaries**  
are available for all members

**ANBUG is represented on the PAC & ACNS Advisory committees** to ensure that members interests come first

**ANBUG is a not-for-profit organisation** with all proceeds from conferences given back to members via bursaries etc

Job applications and post-doc positions are regularly sent to the **ANBUG mailing list**

In the 1990's ANBUG played a key role in **lobbying politicians** to upgrade the OPAL reactor

To be a successful lobby group we **need as many members as possible**, particularly in the next five years

**Our membership is open to everyone**, including international users who conduct experiments at ANSTO

**Even theorists who model neutron data should join ANBUG** to ensure a healthy supply of data!

Currently of the ~ **500 users who conduct neutrons experiments each year** ~60% are ANBUG members

**JOIN TODAY!**

**[www.anbug.net](http://www.anbug.net)**

# Report from China Neutron Scattering Society

*Hesheng CHEN*

*AONSA EC Meeting Nov. 28, 2020*

# Outline

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



# Outline

## 1 **CNSS activities overview**

# Neutron Scattering Facilities in China

User community > 2300 and expands quickly



# CNSS focus and plan for 2020

- **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 focus areas:**
  - **Materials science and technology,**
  - **Chemical engineering,**
  - **Resources and environment**
  - **Material genes.....**
- **Promotion of the work of groups for major fields of NS application**
  - **Promote the writing of a series in various neutron fields**
  - **Establish awards to encourage young researchers.....**

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

## **11 working groups established**

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

- **Software and Data Analysis**
- **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**
- **Deuterium Technology**

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



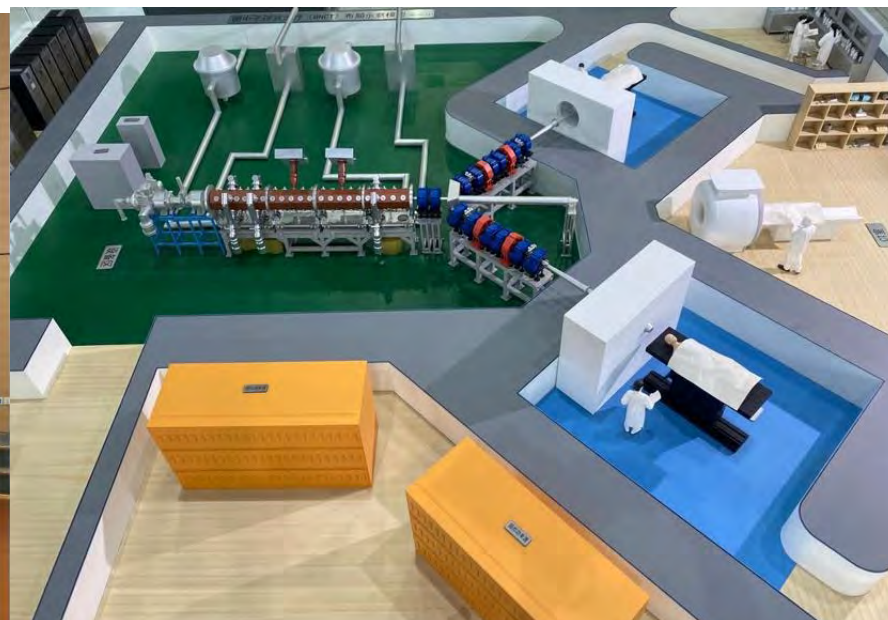
- Rely on CSNS, providing an important research platform for the Guangdong-Hong Kong-Macao Greater Bay Area.
- One of the first 10 joint laboratories to be approved in Guangdong Province
- Multidisciplinary, basic and applied study of neutron scattering <sup>7</sup>

# The first Science Committee meeting of Guangdong-Hong Kong-Macau Joint Laboratory



- July 31, 2020, the first on-line meeting of the science committee was held , attended by 27 academicians and experts from more than 20 universities and research institutions
- The orientation of the laboratory, the development direction of the discipline and the setting of Research Fund were discussed

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



- The successful development of China's first accelerator-based facility for boron neutron capture therapy (BNCT) experiments was announced on Aug. 13, 2020. BNCT has started its first round of cell and small animal experiments using the facility.
- This project will lay a solid technical foundation for clinical trials, thus benefiting the domestic industrialization of BNCT facility and technical innovation in cancer treatment in China.

# The 8th Chinese Conference on Neutron Scattering

(Nov. 11-14,2020 Dongguan)

第八届全国中子散射会议暨国家中子源多学科应用研讨会—2020



- The 8th National Conference on Neutron Scattering were held at CSNS campus on November 11-14.
- The conference aims to develop domestic neutron scattering research, and encourage exchanges and cooperation between users and neutron source facilities.
- About 300 experts from more than 80 universities, research institutes and enterprises, including those from Hong Kong and Macao, attended the conference.



# ■ The 8th Chinese Conference on Neutron Scattering

- More than 80 speakers shared their latest research achievements in 5 themes: large-scale neutron scattering, industrial applications of neutrons, neutron inelastic scattering, development of neutron technology, and neutron diffraction.

第八届全国中子散射会议  
暨国家中子源多学科应用研讨会 - 2020

The 8th National Conference on Neutron Scattering &  
Workshop on Applications of National Neutron Facilities - 2020



# The 9th Plenary Meeting of CNSS



## Main Topics:

- 4 winners of Young Outstanding Paper Awards, were selected, presented by Academician Hesheng Chen
- 7 working groups presented working experience and plans
- Discussed the writing of professional series in various neutron fields

# **Plan to Publish a Serie books about the neutron scattering and applications**

## **Content:**

The serie includes monographs and basic theories, starting from graduate students in related fields and can also serve as a reference book for researchers at the forefront of neutron fields.

## **Publication plan:**

1-2 books will be published every year

**The publication plan for the first book has been determined**

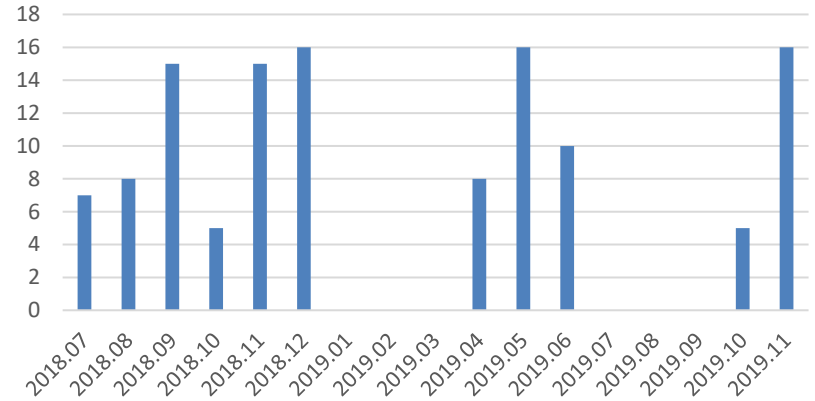
# Outline

## 2 Status of CARR, CMRR and CSNS

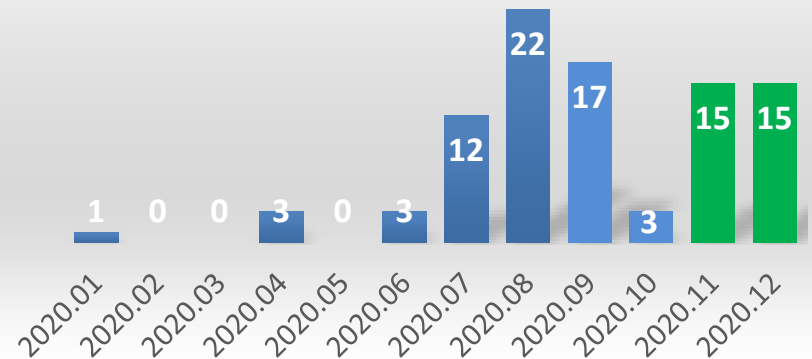
# CARR Operation



**2018-2019 operation for more than 120 days@30MW**



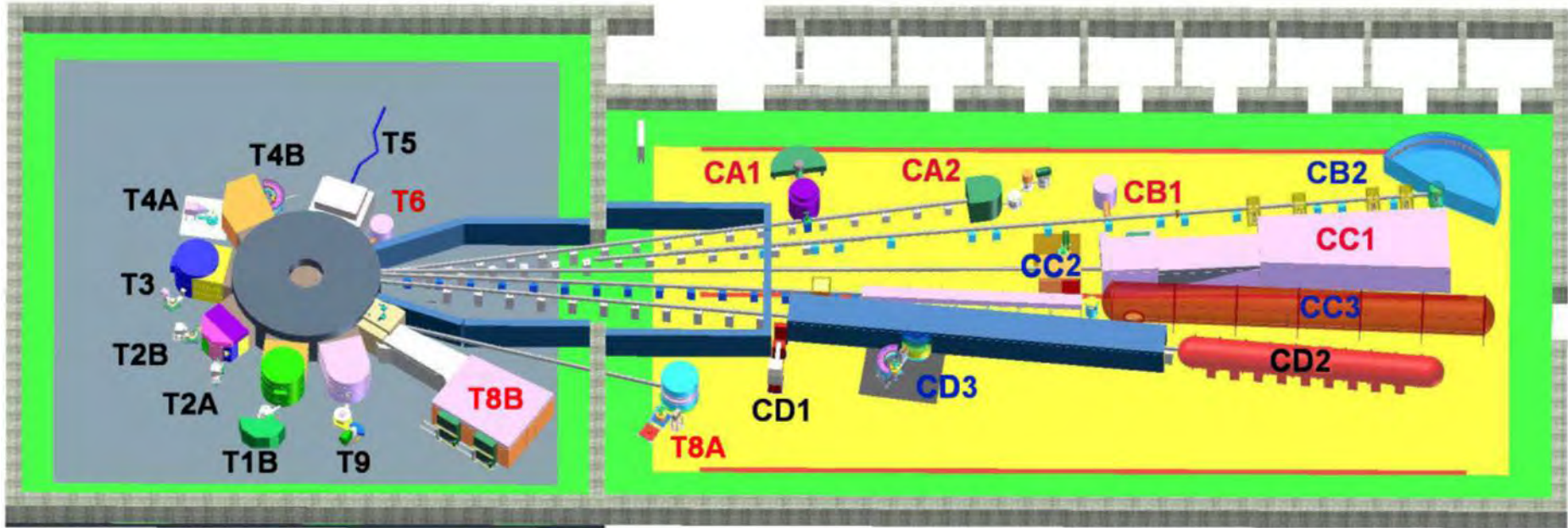
**2020 will run for more than 120 days@40MW**



**2017.10** Installation and commissioning of cold source

**2017.12** Pass the site completion acceptance

# Plan view of CARR facilities



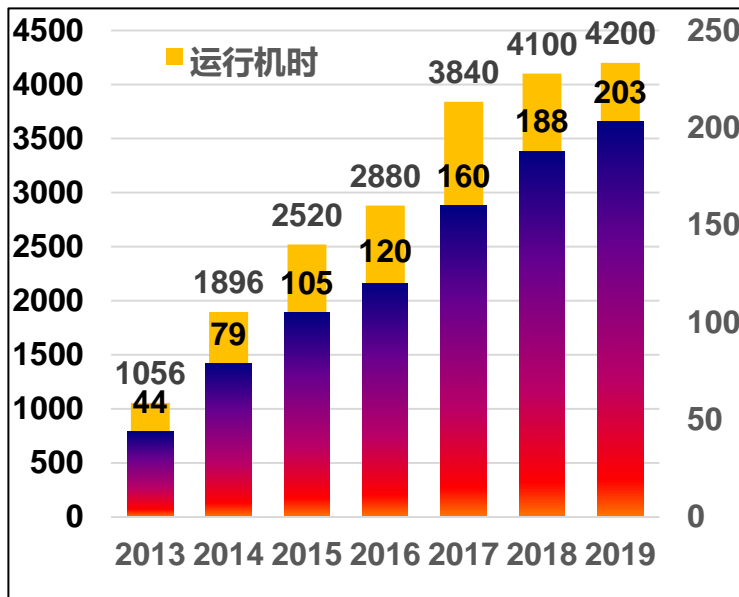
**Completion (12)** : Triple Axis Spectrometer I (T9), Triple Axis Spectrometer II (T1B)、Four Circle Diffractometer (T2A)、Texture Diffractometer (T2B)、Residual Stress Diffractometer (T3)、High Resolution Powder Diffractometer (T4B)、High Intensity Powder Diffractometer(T4B),Small Angle Neutron Scattering (CD2)、Reflectometer (CD1)、Cold Triple Axis Spectrometer (CTAS)、Neutron depth profiling、Cold neutron broad spectrum spectrometer

**Under construction (6)** : Thermal Neutron Imaging (TNI)、Cold Neutron Imaging (CND)、Engineering Neutron Diffractometer(END)、Instrumental Neutron Activation Analysis (INAA)、Cold neutron Prompt Gamma Activation Analysis (C-PGAA)、Thermal neutron Prompt Gamma Activation Analysis (Th-PGAA)

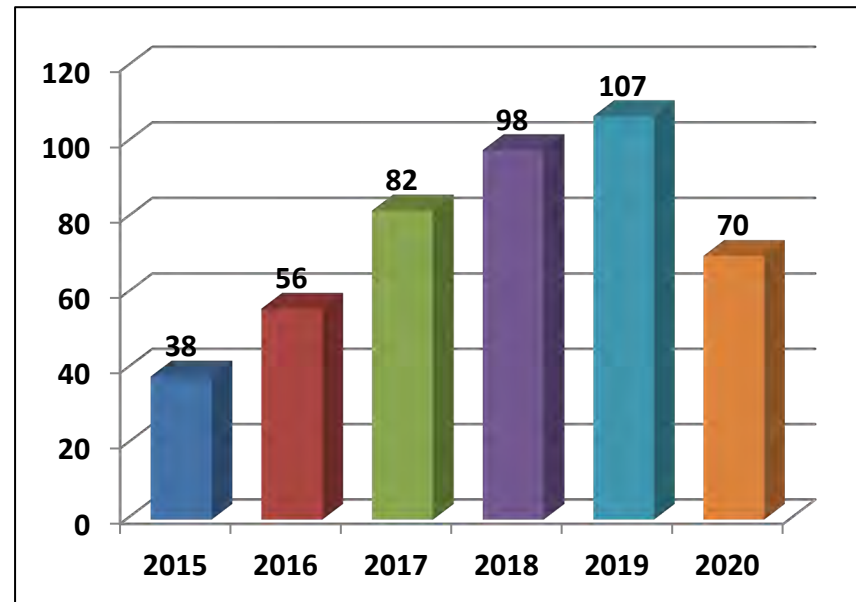
**planning (4)** : Time of Flight (TOF)、Cold Neutron Powder (CNP)、Small Angle Neutron Scattering (SANS)、Polarized Neutron Reflectometer (PNR)

# China Mianyang Research Reactor ( CMRR )

- Since 2015, the number of operating days has steadily increased, starting with more than 200 days per year in 2019; it has been operating for more than 170 days (until October) in 2020, and it is expected to exceed 200 days in the whole year
- The number of users is increasing year by year, starting in 2019, more than 100 proposals per year, involving materials, physics and aviation fields, etc.; more than 70 proposals for have been accepted in 2020



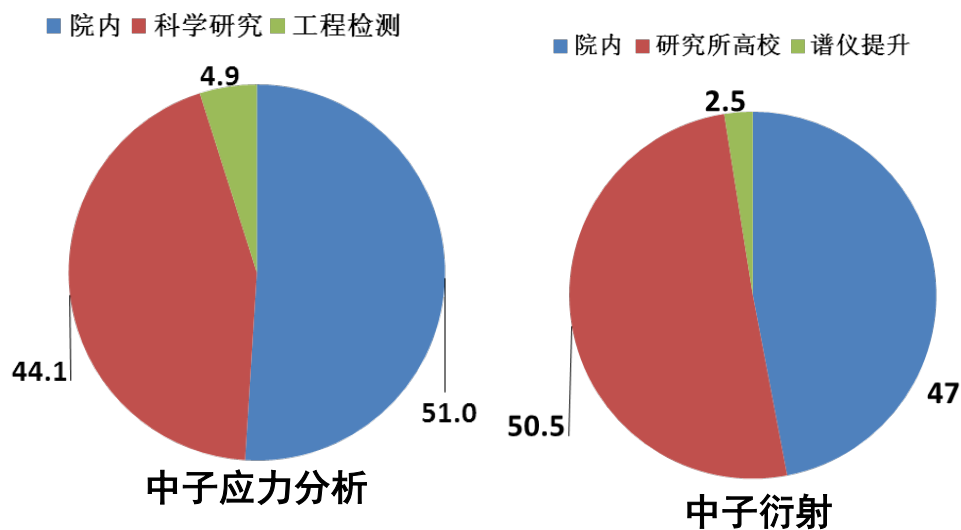
Reactor operating days



Number of CMRR users

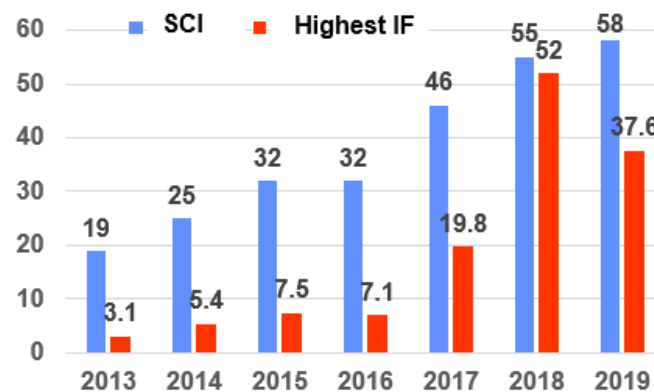
# CMRR application in 2020

- During the epidemic, user experiments have been carried out mainly through online discussion and offline sample mailing, and user accounts for more than 50% of the total beamtime
- 28 papers have been published in journals such as Angew. Chem. Int. Ed and Materials Today in 2020.



Beamtime distribution (as of October 2020)

user accounts for more than 50% of the total beamtime



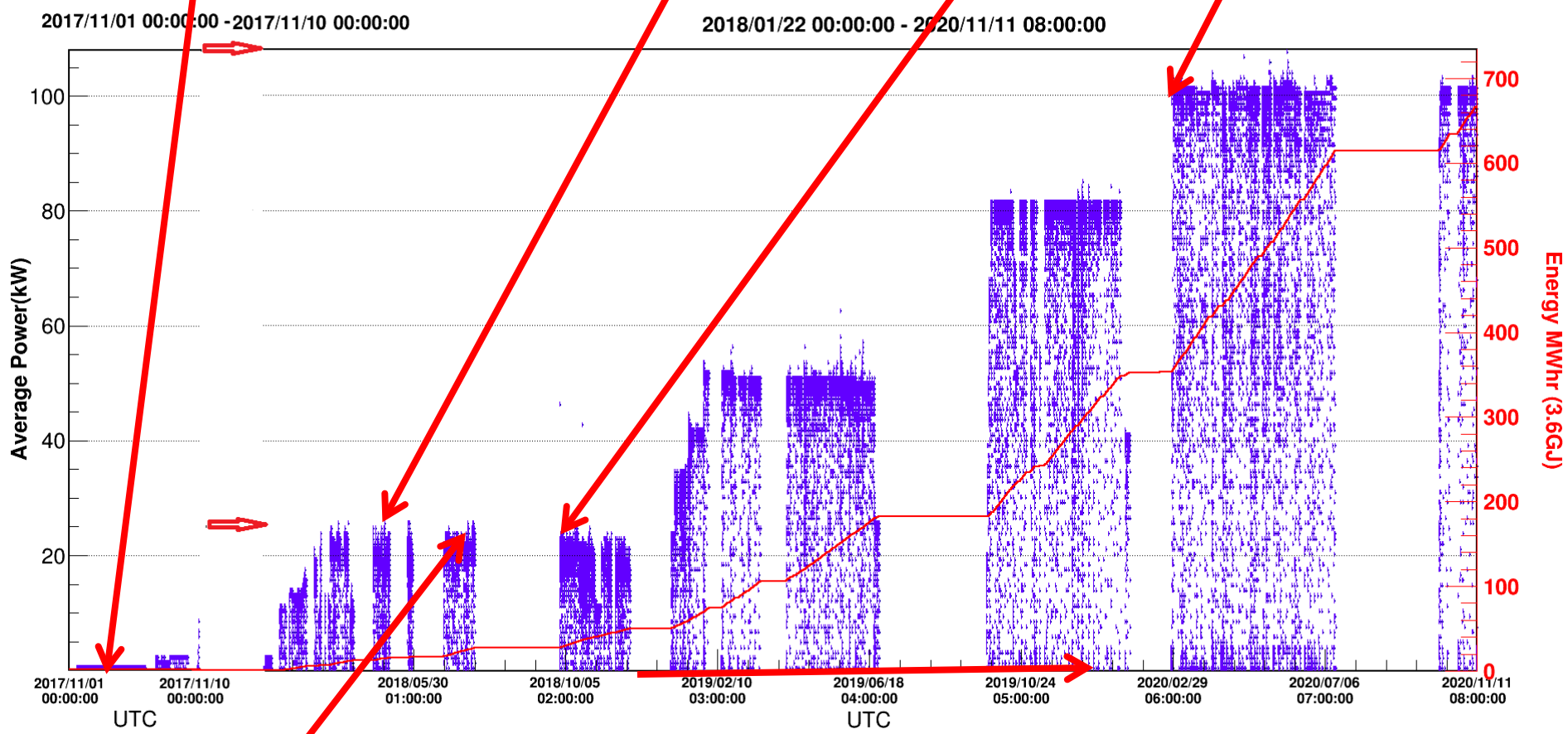
Output of user papers



# CSNS beam history



First diffraction pattern First scientific paper Open to user Beam power 100kW



Beam availability > 90%

4576h & 92.8% @2019

3498h 2020.11.11

# CSNS Status and Progress

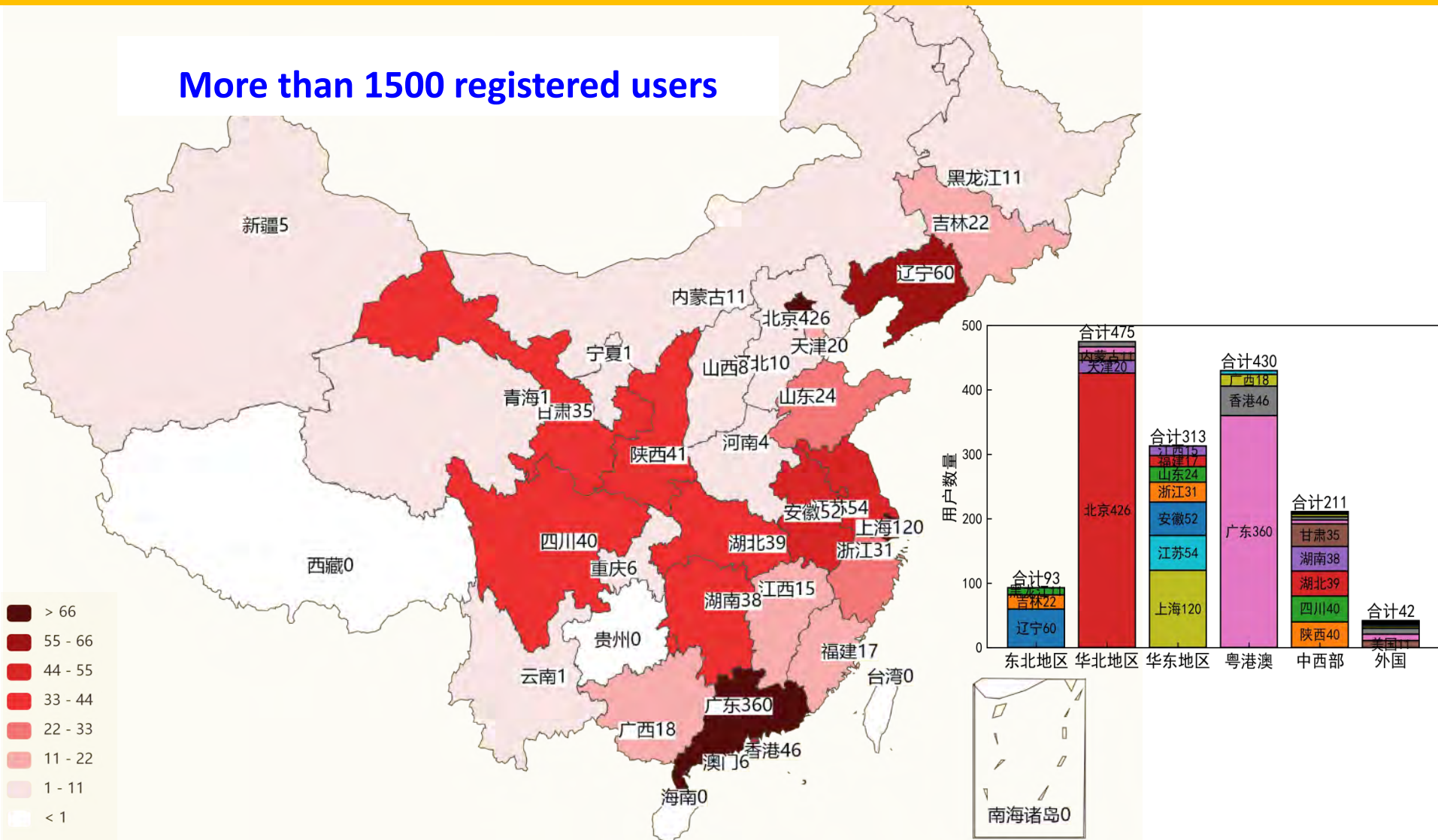
- **CSNS has been run in 100 kW efficiently.**
- **The first target has been successfully replaced in this summer.**
- **The fourth round of user proposals have been completed, and in totally 221 user experiments have been conducted.**
- **More sample environments and user lab were established.**
- **All the insert components of users neutron instruments have been installed in this Summer.**



# Geographical distribution of users of CSNS



More than 1500 registered users



International users

United States 11 , United Kingdom 11 , Germany 8 , Australia 3 , France 3 , Holland 1 , Russia 1 ,Italy 1 Spain 1 , Singapore 1 , Sweden 1

# User proposal application status



In the four-round runs of CSNS, more than 1,500 users registered in the CSNS User Service System, more than 220 user proposals have been completed, and more than 50 articles have been published in journals such as Science, Nature Communication, Advanced Materials, and JACS, etc. At present, the accepted rate of proposals is less than 40%.

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)	--

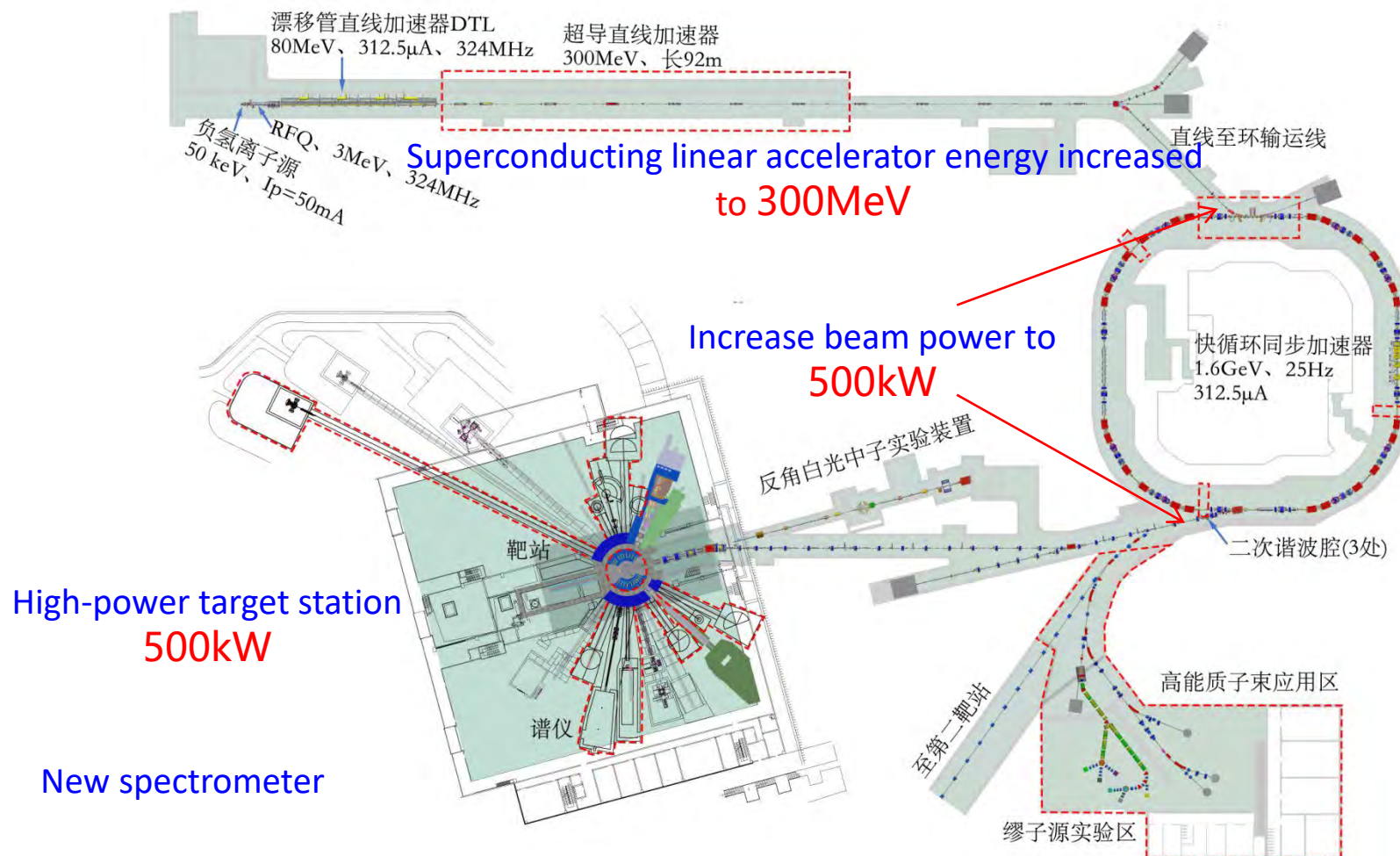
- **Multiple Physics Instrument** by Dongguan Inst. of Technology, and CityU (HK) **will be completed by the end of 2020**
- **Engineering Diffractometer** by Center for Excellent Advanced Materials (Dongguan) **will be completed by the end of 2022**
- **High Pressure Diffractometer** by South China Univ. of Sciences and Technology **will be completed by the end of 2022**
- **High-resolution neutron powder diffractometer** by Peking University Shenzhen Graduate School. **under construction**
- **High energy chopper spectrometer** by SUN YAT-SEN Univ. **will be completed by the end of 2022**
- **Atmospheric Neutron Irradiation Spectrometer** by the Inst. of industry and information technology. **will be completed by the end of 2021**

**All of them are built by CSNS (turn key).**

## **Guangdong Province Government Donation:**

- **Very small angle neutron scattering**
- **Energy resolved neutron imaging**

# CSNS Phase II Project



- **More neutron Instruments (9 instruments)**
- **Beam power upgrade to 500kW**
- **Muon beams.....**

# 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

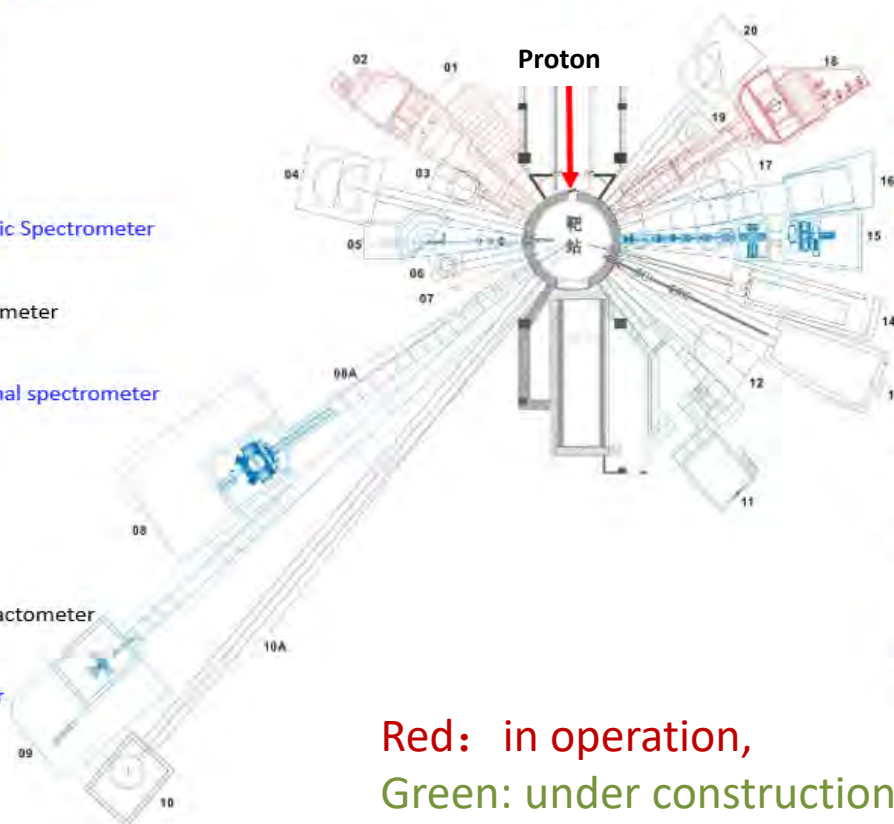
06 逆几何分子振动谱仪  
indirect geometry molecular vibrational spectrometer

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 well, and more scientific results obtained.**
- **More neutron instruments and sample environment are promoted. CSNS II proposed.**
- **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 !**



# Report from the Korean Neutron Beam Users Association

The 25<sup>th</sup> AONSA EC meeting  
Online via ZOOM  
2020/11/28



(<http://www.neutron.or.kr>)

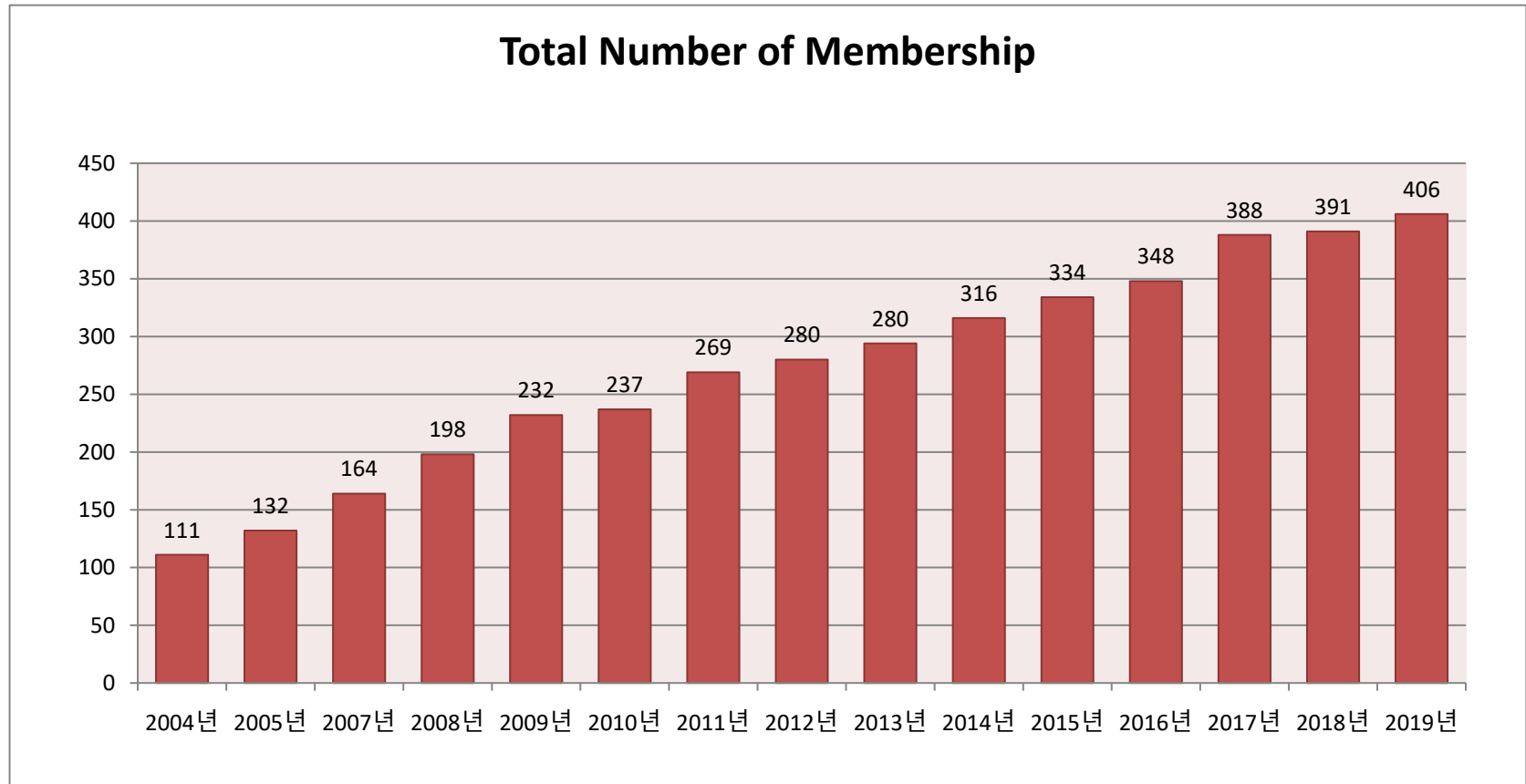
Soo-Hyung Choi (Hongik Univ.)  
Jae- Ho Chung (Korea Univ.)

# KNBUA: Current Status

◆ **Total number of membership: 417 (as of 2020)**

□ Professionals: 181

□ Students: 236



# Korean Neutron Beam Users Association

## ◆ KNBUA Executive Committee Meeting (2020. 8. 21 & 11. 13)

- ❑ 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



# Korean Neutron Beam Users Association

## ◆ **KNBUA General Assembly of 2020 (2020. 07. 23)**

- ❑ 2020. 07. 23
- ❑ ZOOM Online

## ◆ **HANARO Neutron School for SANS & NR**

- ❑ 2020. 8. 25 ~ 9. 1 / Online
- ❑ Registered : 30

## ◆ **HANARO Neutron School for Neutron Diffraction**

- ❑ 2020. 8. 25 ~ 9. 1 / Online
- ❑ Registered : 109

# 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

**Report from ROSNEUTRO**

**Vyacheslav Em**

**NRC “Kurchatov Institute”**

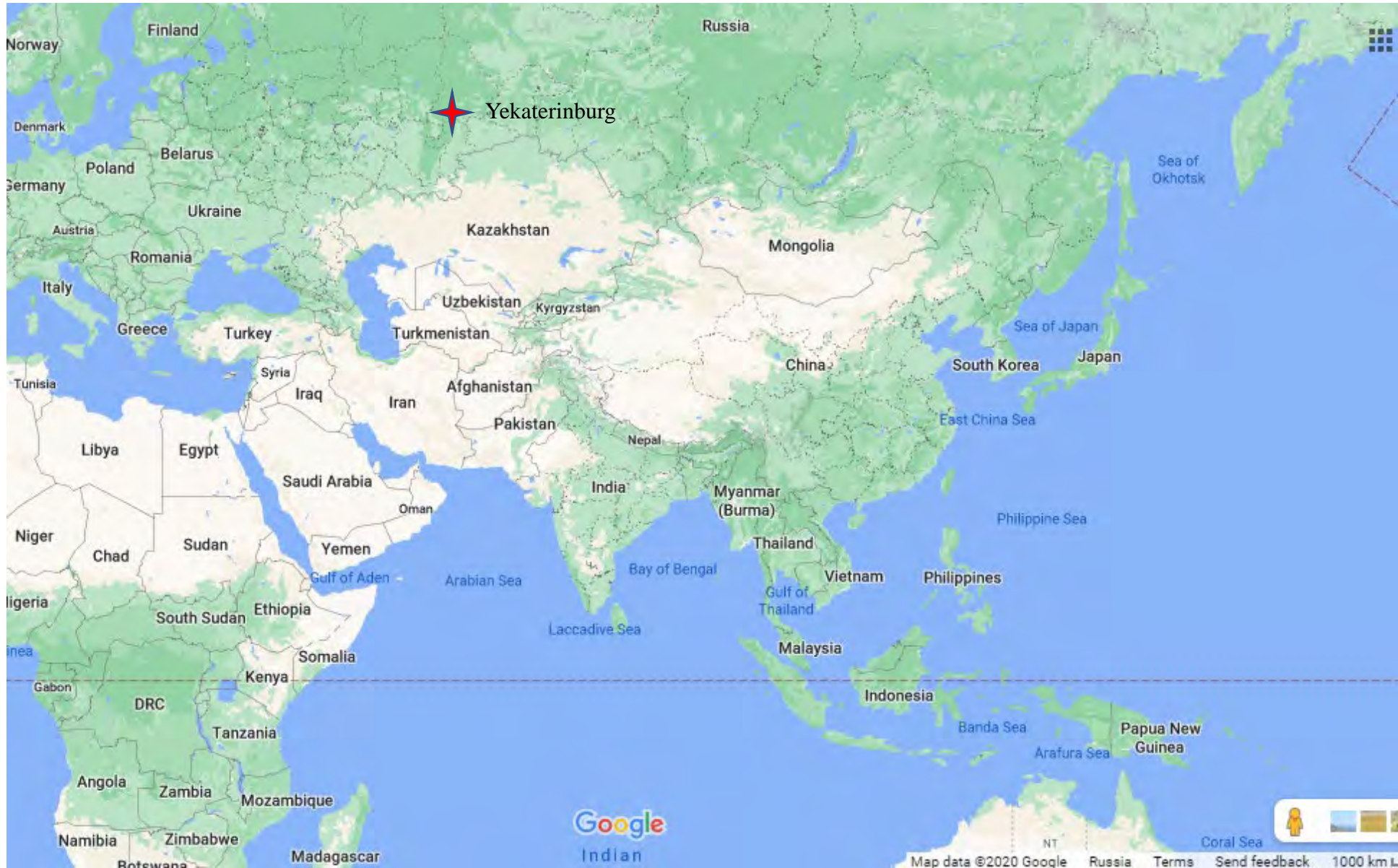
## **Conference RNIKS**

The conference "Neutron Scattering in Condensed Matter Research" (RNIKS) began to be held every two years about fifty years ago. First in the former Soviet Union and then in Russia. The last conference was held in 2018.

This year, the conference was planned to be held on November 9-13 in Gatchina near St. Petersburg. However, due to the COVID-19 pandemic, the conference was postponed until the fall of 2021. It will be held in 2021 in the town Yekaterinburg, which crosses the border between Europe and Asia.

The Institute of Metal Physics of the RAS conducts researches using the neutron scattering instruments at research reactor IVV-2M (15MWt) near Yekaterinburg. The main directions of these researches are radiation physics and magnetic materials.





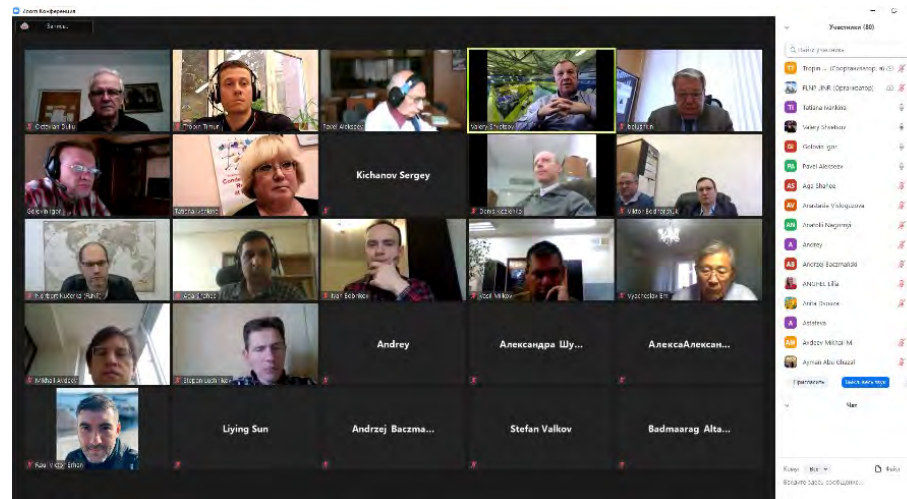
# International Conference Condensed Matter Research at the IBR-2

<http://cmr-ibr.jinr.ru>    [cmr@nf.jinr.ru](mailto:cmr@nf.jinr.ru)



October 12-16  
2020  
Dubna  
Russia

## Conference CMR@IBR-2



### Modernized IBR-2 High Flux Pulsed Reactor (FNPP JINR)

**Operational since 1984**  
**2007-2010: modernization shutdown**  
**2010-2011 Physical and power start-up completed**  
**2012 - Regular operation renewed**

### Dubna Neutron Source of the Fourth Generation two options

**Superbooster NEPTUN**      **PuO<sub>2</sub> based superbooster**

**Progress outline:**

1. A superbooster (multiplying target of proton linear accelerator with periodic reactivity modulation) is being considered for the new neutron source
2. Feasibility study of 2 concepts (**neptunium** and **plutonium** based) has been started
3. **Time schedule road map** has been developed that establishes 6 major stages and proposes the finalization in **2035** - replacing the present source IBR-ZM smoothly

In: A. Kuznetsov & V. Zhurav. Development of the scientific case for a new source of neutrons at IBR-2. Dubna. 2019. Preprint. Concept of JINR high flux pulsed neutron source. S.V. Zhurav & V.L. Alabuzhev. Milestones and time schedule proposal to the strategy plan of JINR.

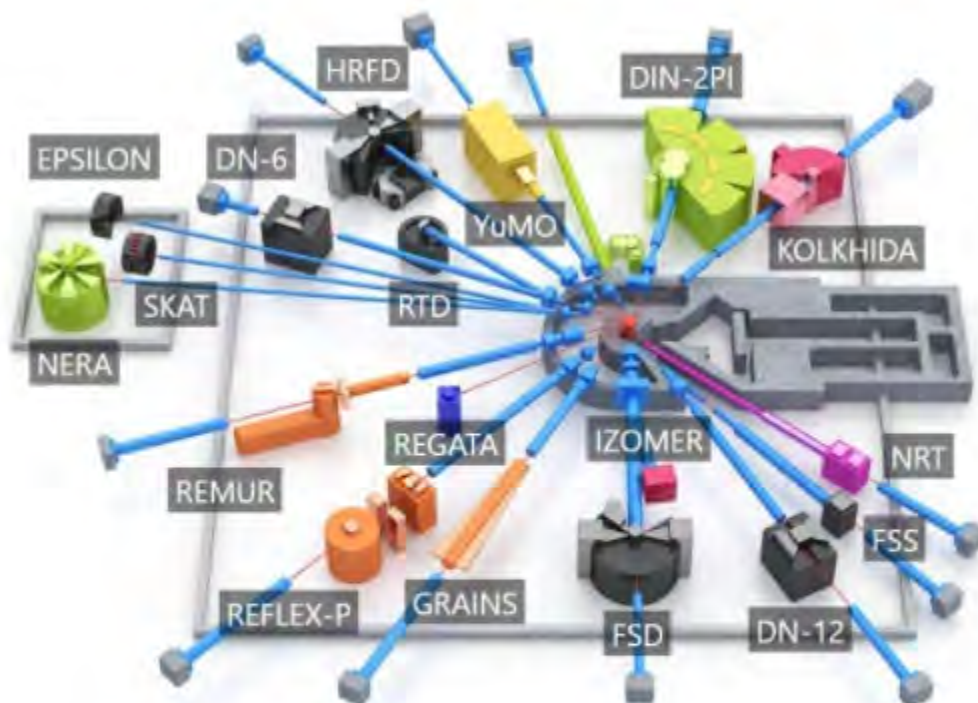
### In operando analysis under Li-O<sub>2</sub> battery discharge

At YuMO station, IBR-2

**Electrochemical cell**

**Joint Institute for Nuclear Research (JINR)**  
Frank Laboratory of Neutron Physics (FLNP)  
(Dubna)

Reactor IBR-2 (1984/2012):  
 $P = 2\text{MW}$   
 $F_p = 2 \times 10^{16} \text{ cm}^{-1} \text{ s}^{-1}$



[Work schedule of the IBR-2 reactor in 2020](#)

IBR-2 Status: OFF

**Next cycle:** December 07 (starts at 6 PM) – December 21, (ends at 6 PM), 2020

 [IBR-2 Current Status](#)

### Useful information

- [IBR-2 INSTRUMENTS with the list of REFERENCES and RESPONSIBLE](#)
- [CONFERENCE CMR@IBR-2](#)
- [FLNP USER GUIDE](#)
- [FLNP ANNUAL REPORTS](#)
- [FLNP DNICM LABORATORY EQUIPMENT](#)

News of IBR-2 User Club

2020/11/03

Information for RNF grant applicants/Информация для грантозаявителей РФ

[ОБЪЕКТ ИНФРАСТРУКТУРЫ - ИБР-2](#)

# CMR@IBR2 SCIENTIFIC PROGRAMME

INVITED SPEAKERS - 17

PLENARY TALKS – 46

POSTERS– 85

Maximum instant number of  
participants in ZOOM - 112

Mean every day  
participants in ZOOM - 70

International  
Conference  
Condensed Matter Research at the IBR-2

Dubna  
Russia

## ABSTRACT

**O** Functional and Nanostructured  
Materials

**O** Development of Neutron Scattering  
Techniques and Instruments

**K** Soft Condensed Matter

Carbon-based Materials

Dynamics of Materials

Magnetic Nanomaterials

Neutron Imaging

Materials under extreme conditions

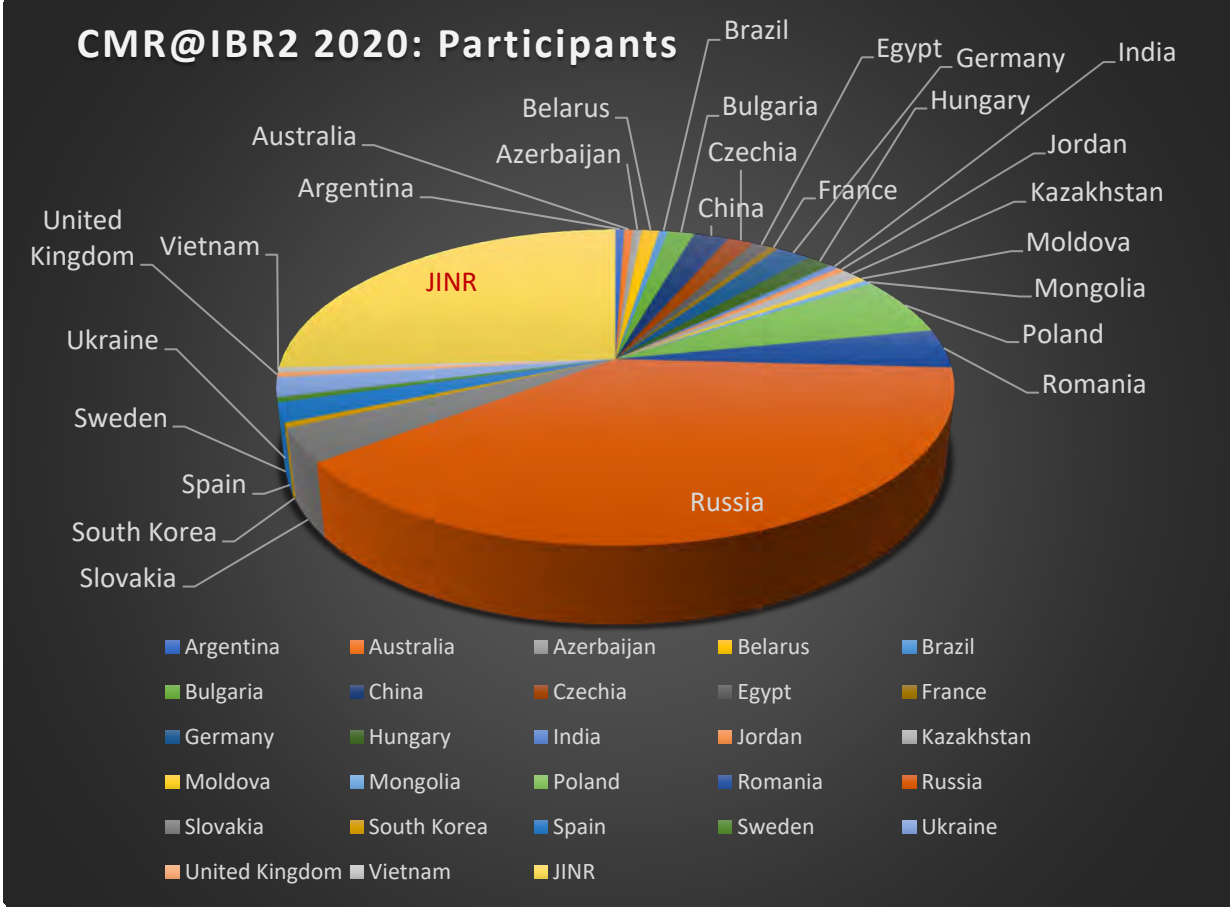
Texture and Stress  
investigations of Materials

October, 12 - 16  
2 0 2 0

CMR @ IBR-2



Conference proceedings are planned to be published in the Journal of Surface Investigations



Country	Participants
Argentina	1
Australia	1
Azerbaijan	1
Belarus	2
Brazil	1
Bulgaria	3
China	4
Czechia	3
Egypt	2
France	1
Germany	4
Hungary	3
India	1
Jordan	1
Kazakhstan	2
Moldova	1
Mongolia	1
Poland	12
Romania	8
Russia	78
Slovakia	7
South Korea	1
Spain	4
Sweden	1
Ukraine	4
United Kingdom	1
Vietnam	1
JINR	52
<b>Total</b>	<b>201</b>

Thank you for attention!