# Minutes 20th Asia-Oceania Neutron Scattering Facility Directors Meeting, in conjunction with the 25th AONSA Executive Meeting

Date: Friday 20th 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
Location: ZOOM internet conference

Participants:

[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)

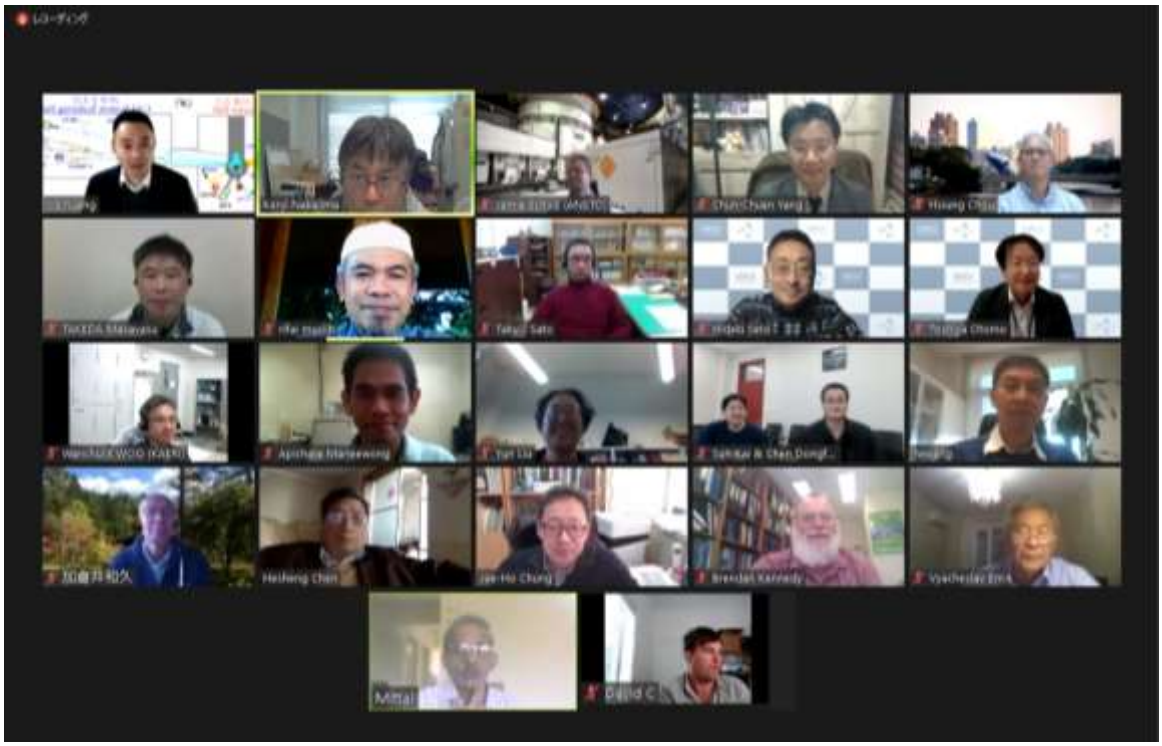
1. Opening remarks (by Kenji Nakajima)
   Opening remarks was made by Kenji Nakajima.

2. Self-introduction of attendees (all attendees)
   Participants introduced themselves.

3. Purpose & role of the FDM (by Kenji Nakajima)
   The aim, the scope, the regulation and the mission of the FDM were explained by Kenji Nakajima.

4. Approval of agenda
   The agenda was approved as proposed by Kenji Nakajima.

5. Photo



6. Approval of new observer
   National Research Center "Kurchatov Institute" (NRCKI, representative person: Viacheslav Em) was approved as a new observer member.

7. Review of last meeting notes
   The last meeting was reviewed by Kenji Nakajima. No comments from participants.

8. Facility Updates
   (1) JRR-3 (Masayasu Takeda)
   Current status of reinforcement construction & call for proposals, group structure and staffing were shown. JRR-3 will restart form the next year and user program will resume from July. JAEA is working on updating sample environments and control systems. Univ. of Tokyo and university group select 7 instruments to focus on providing to general users and the others will be used internal programs, education and other internal activates without user support. 83 proposals were applied for the latest round. Recent workshops were also reported.

JS: After restarting JRR-3, what will happen on the financial support program for users to visit facilities out-side Japan?
MT and other Japanese participants: It will be terminated. Only official fund is for US-Japan program. We are trying to find new fund to continue to support.

(2) J-PARC (Toshiya Otomo)
1 MW test was carried out in the last June for 36.5 hours successfully. For the next time, 1-2 weeks test is considered. Due to the COVID-19 pandemic, many carry-over experiments are left. To absorb them, in the call for proposal, 2020B and 2021A were jointed and we had 457 proposals. After the summer shutdown, due to the delay in the neutron source maintenance, restart of MLF was rescheduled from November 9 to December 1. As action against to the COVID-19 pandemic effect, effort to developing the environments to enable remote access experiments. J-PARC has several COVID-19 related proposals.

JS: Do you accept international users?
TO: We have only a long-term visitor (student, 10 months).

PUS: is it possible to send samples by mail for doing experiments by instrument scientists and send data?
TO: It is, in some time, heavy work to instrumental scientists. Depends on the types of experiments.

DC: What is your comment on software for the remote access?
TO: We are preparing Web-interface type environments. Standardization might be important but we are feeling difficulties (development cost, many legacy software available, etc.).

(3) CSNS (Fangwei Wang)
CSNS is running at 100 kW stably. We successfully finished the 1st replacement of the target in August. Recent status of user program (combination of direct and rapid accesses) was shown. 51 scientific papers have been published as out-comes from 3 running instruments. Upgrading of sample environments, GPPD and recent status of other 2 running instruments were reported. Construction of user instruments are also continuing. Multi-Physics instrument will be ready in this year. The 1st user annual meeting was held in September 12-13 on line (350 participants).
Regarding to the COVID-19 impact, in the first half of this year, users could not access to the facility and we provide mail-in services. In the later half, we escaped from the impact.
AONSA Neutron Scholl will be postponed to October 25-31, 2021. At CSNS site, 40 students (including20 domestic students), 400 $ for participation fee, 7days.

JS: How is the current status of the synchrotron project?
FW, HC: On going. We have gotten fund from the local government for investigations, and are applying the fund from central government. More detail and wide information regarding to China synchrotron was provided by HC.

(4) HANARO (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.

JS: Do you have any change of number of staff?
WW: We stopped more than 6 years. Number of instruments reduced from 12 to 7. We are trying to resume.

(5) OPAL (Jamie Schulz)
Statistics of OPAL reactor and user program were reported. Operation days is 302 in 2020 and will be reduced a little to 292 in 2021 due to a planned primary shutter installation (will be done in April - June 2021). 15 instruments are running. 74 staffs, 5 associated staffs, 4 PDs, 43 PhDs from 17 countries and 17% of staffs are female. Mail-in service is available for SNAS-Quokka. Number of proposals to new instrument, SPATZ is steadily increasing. Anonymised review trial will be carried out in 2022-1 round upon the request by Women in Stem Ambassador. Number of publications is stable around ~180/year recently. Recent topics of awards, funds were shown. Accept of 2020 AONSA Young Research Fellow is suspended due to the COVID-19 pandemic and will be accepted in the next year. ANSTO obtained fund for infrastructure (FY22 and 23). Impact of the COVID-19 pandemic was explained. ANSTO shut down in March, staffs returned to the site in 'orange mode' in May and the user program was resumed in June. One of the issues is carrying out back-log experiments. ANSTO gives priority to experiments of young-research-carrier users. Restriction of travel across states in Australia is reduced, but accepting international users is still difficult. Mail-in service of polarized SANS experiments was started and ANSTO got 2 proposals. Workshop on powder diffractometer was held in October, and neutron school will be held in December. Both are on-line.

KN: How beamline scientists feel about mail-in service? Can they commit to selection process of mail-in proposals?
JS: Yes. We are selecting together.

(6) CARR/CIAE (Kai Sun)
CARR operation was interrupted by the COVID-19 pandemic and resumed operation from July. ~90days at 40 MW. 12 instruments are in operation and 6 are under preparation. Current status of running instruments (HRPD, HIPD), instrument related developments (sample environments, a monochromator, etc.) were shown. Highlights of recent scientific out-puts were shown. One of them is a COVID-19 related research, investigation on solution of nsp13 of SARS-Cov-2 by using SANS instrument. Other investigations on battery materials, thermo electric materials, residual stress in high-speed train wheel etc. were shown. Thermal Neutron Imaging and Engineering Diffractometer will be ready in 2021.

FW: What is a purpose of development of the double crystal monochromator for the imaging instrument?
KS: To reduce the background.

KN: Are you considering to provide mail-in service to users?
KS: Since we got out from the COVID-19 impact, may be not necessary.

(7) CMRR (C. Q. Huang)

In 2020, 4705 hours in operation, 2074 hours used for user program. Number of users were more than 100 in 2019. Number of papers were 58, and proportion of top publications was more than 10% in 2019. 8 instruments are under construction. NSTB and USANS will be built in 2020. TTAS is planned to open to users in October in 2020. Due to the COVID-19 impact, 50% users used mail-in service. Recent scientific out-puts (study on NiTi allow, magnetic order in Iron based super conductor, etc.) were shown.

JS: For what is 4705-2074 hours operation used?
CQH: For in-house research program.

(8) DHRUVA (P. U. Sastry)
DHRUVA reactor operated 130 days at 100 MW from July to November. 12 instruments are in operation and 2 (TOF and TAS) are under construction. Upgrading of High-Q diffractometer is under way. Staffing (45 scientists and 12 technicians and engineers), number of users (50/year) and scientific out-com statistics (675 papers/5years, average impact factor ~3.5) were reported. About the COVID-19 impact, staffs are working regularly with standard precaution.

KN: Are users also affected by the COVID-19 impact?
PUS: Long distance users still unable to come and do experiments physically. However, collaborations are going on.

(9) G. A. Siwabessy (Rifai Muslih)
The reactor is running at 15 MW with 8 working instruments and 32 staffs. Operation days is 150 days/year in average. Number of publications is 27 in 2020. Activities in instrumentations on NAA, HRPD, TAS and SANS, recent results from radiography instrument and texture diffractometer were reported. Recent conferences held on-line were reported. As action against to the COVID-19 impact, institute is providing mail-in service to users. In Indonesia, even domestic transportation is limited.

(10) NRCKI (Viacheslav Em)
Two reactors were reported.
IR-8 is originally designed for 1 MW and now running at 8 MW. Medium-reactor-comparable high flux ($2x10^{14}$/sec $cm^2$) is achieved. A could-neutron source will be installed and 3 instruments will be installed at the cold source. Due to works of replacement of two beam shutters, refurbishment of cooling tower and preparation for installation cold neutron source, the reactor operated only 3 weeks in 2020 and will be restarted until the end of this year.
PIK is 100 MW class reactor under commissioning. At the highest point (central trap), flux is $5x10^{15}$/sec $cm^2$ for thermal neutrons. The reactor has 2 cold neutron sources. It is expected to achieve 100 MW at the end of 2023. 5 day-one instruments. 20 instruments are planned.
About the COVID-19 impact, Russia is under 2nd wave now. Working on-line from home is recommended (30% remote work, elder persons are not allowed to attend the office, shift-working is introduced).

JS: Whey does IR-8 have so high flux?
VE: Using highly enriched fuel (90%) and the reactor core is compact ~~(~2 m)~~.
*The thickness of reactor shielding is about 2m.

JS: How long is the life time of IR-8?
VE: It is reaching the licenced life time and the process to extending it is under way. We are expecting to extend at least 20 years.

9. Discussion on the challenges, opportunities and cooperation of neutron facilities
   (1) Challenges against to the COVID-19 pandemic duration
   1-1. All facilities (except JRR-3 and HANARO, which were stopped) are suffered from the COVID-19 pandemic in user program.

   1-2. Facilities in China are getting out from the impact except international user program.

   1-3. Especially, users across the border are difficult to accept.

   1-4. 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.).

   1-5. 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.

   1-6. The information of the COVID-19 related research activities was shared. Several activities of investigations on SAR-Cov-2 are undergoing in collaboration with other facilities including non-neutron facilities. Direct access to virous by using neutron probe might be difficult but neutron can do something. There are also the COVID-19 related researches investigating on not virous but on (for example) materials used in medical equipment.

   (2) Regulation of membership of FDM
   Reconsidering of regulation of membership (roles) of FDM was raised. We will discuss continuously with interaction with AONSA and AONSA EC.

10. AONSA Business
   (1) AONSA Young Research Fellows
   Confirmation of current status of 2020 fellows.
   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 2021 fellows.
   3 fellows will be assigned to ANSTO, CSNS and J-PARC.
   Dr. Teng Lu: J-PARC AMATERAS
   Dr. Badria Adilina: ANSTO QUOKKA/PERLICAN/EMU
   Dr. Rezwanul Haque: CSNS SANS/MPR

   (2) Next AONSA Neutron School
   2021 School will be held at CSNS.
   About 2022, we will discuss in the next FDM.

11. Other business:
   (1) Next Chair
   Kenji Nakajima (J-PARC/JAEA) will act the next chair.

12. Closing remarks

Closing remarks was made by Kenji Nakajima.