NEWSLETTER of the Asia Oceania Neutron Scattering Association

Vol. 17, No. 1 (December 2025)

Contents

Group photo of the ICNS 2025 held at the Bella Center, Copenhagen, DNK

President's Message

The Asia-Oceania Neutron Scattering Association (AONSA) has been a thriving platform in the Asia Oceania region to foster the advancement of neutron science and technology with its kick-start in Osaka, Japan on August 28, 2008, when the first EC meeting of AONSA was held. I am deeply honored to have the pleasant responsibility as the President of the AONSA for the term Jan 2024 –Dec 2025 to write the President's Message for the current AONSA Newsletter. The Newsletter serves as the AONSA mouthpiece. This issue features the technical advancements made by neutron societies as well as concise reports from the facility directors. The current issue of the Newsletter has the latest news from the region with research highlights from the community as well as updates from facilities and user groups. It also includes the news on the award ceremony of the AONSA Prize 2025 and the AONSA Science Awards 2025. The cover page of the edition features the group photo of the recently concluded International Conference on Neutron Scattering, ICNS 2025, held in Copenhagen, Denmark, and Lund, Sweden during 6^{th} – 10^{th} July 2025. I am pleased to convey that based on the approval at the last Executive Committee meeting of the AONSA held in June 2025, a proposal was mooted by President, AONSA with the other two major neutron scattering associations in the world (ENSA and NSSA) regarding the possibility of hosting of the ICNS2029 (the 14^{th} in the series) in the Asia Oceania region. It is a satisfying moment for all of us that the proposal is accepted and the ICNS 2029 will be held in the Asia Oceania region. The Asia Oceania region is, therefore, going to host the ICNS event for the second time after formation of AONSA; the first one (ICNS 2017, 11th in the series) being held in Daejeon, Korea in July 2017. Undoubtedly, such a decision would maintain equitable regional representation and provide meaningful opportunities for the global neutron research community to visit the region fostering collaboration and knowledge sharing across various sub-disciplines of neutron scattering methods, applications, and updates. I am also happy to mention that our efforts to expand the footprint of AONSA in the Asia-Oceania region are gaining momentum; with researchers from Vietnam, and Indonesia are currently in the process of becoming members/observers. We look forward to having the next AONSA EC meeting on Nov 15, 2025, at Tokyo,Japan as well as the AONSA Neutron School to be held at J-PARK, Tokai, Ibaraki, Japan during November 17-21, 2025.

AONSA has witnessed other important developments recently. The coveted AONSA Prize for 2025 was awarded to Prof. Wen-Hsien Li of Taiwan for his outstanding contributions to neutron science, his leadership in cultivating a robust neutron research community in Taiwan, and his significant role in the development of AONSA. The AONSA has now instituted a new award, AONSA Science Award, category dedicated to recognizing the outstanding contributions of midcareer researchers. I am happy to note that Professor Yuan Li, Institute of Physics, Chinese Academy of Sciences, China, Dr. Anup Kumar Bera, Bhabha Atomic Research Centre, India, and Professor Vanessa Peterson, ACNS, Australia are the first recipients of this prestigious midcareer award. The AONSA Prize and the AONSA Science Awards were presented in the recently concluded

ICNS2025. I congratulate all the awardees for their excellent work and recognitions. AONSA encourages all its affiliated associations to come up with more proposals to organize AONSA Symposium. I urge the young research community in the Asia Oceania region for a larger participation in the vibrant AONSA Young Research Fellowship program. I also encourage all affiliated societies to boost their membership to strengthen the AONSA further. I wish to thank all Board as well as EC members of AONSA for their dedicated contributions to the development and progress of the efforts of AONSA. I look forward to our continued collaboration and the exciting advancements in neutron science.

S. M. Yusuf
Bhabha Atomic Research Centre
President of AONSA

Prof. S. M. Yusuf, President of AONSA, currently serves as Director, UM-DAE Centre of Excellence in Basic Sciences, Mumbai, an Aided Institute under the Department of Atomic Energy, Govt. of India, and J C Bose National Fellow at Bhabha Atomic Research Centre, Mumbai 400 085. He also serves as Senior Professor, at both Homi Bhabha National Institute, Mumbai and UM-DAE Centre of Excellence in Basic Sciences, Mumbai. He is an elected fellow of The World Academy of Sciences (TWAS) and all three national science academies in India, viz. Indian National Science Academy, the Indian Academy of Sciences, and National Academy of Sciences, India. He also served as Director, Institute of Physics, India. He obtained his Ph D from University of Mumbai, India. He was a post-doctoral fellow at Argonne National Laboratory, USA, and a visiting scientist at the Institute of Materials Science, Spain. and the recipient of U.S. Depart. of Energy Fellowship as well as the Spanish Ministry of Science & Education Fellowship. He has made significant research contributions to the area of low dimensional magnetism, quantum magnetism, the phenomena of magnetization reversal, and magnetic proximity effects, molecular magnetism, etc. He has successfully led the neutron scattering programme in India. He has also executed collaborative research at ILLFrance, LLB-France, PSI-Switzerland, HMI-Germany, ANL-USA, and ISIS-UK. Besides, he has collaborated with Kyoto University, and The University of Edinburgh. He has published nearly 400 original research articles, and obtained US patent, European patent as well as Indian patent. Presently, he serves as President of Asia-Oceania Neutron Scattering Association (AONSA), Vice-President, Materials Research Society of India, etc. He also served as President of Indian Physics Association, Vice Chair, DCMP, Association of Asia Pacific Physical Society, President, Neutron Scattering Society of India, Vice President, Indian Crystallographic Association, Member of Neutron Science Review Committee, ORNL, USA during 2013 – 2021. He is the recipient of several prestigious awards and recognitions in India.

Report on the 34th Executive Committee Meeting

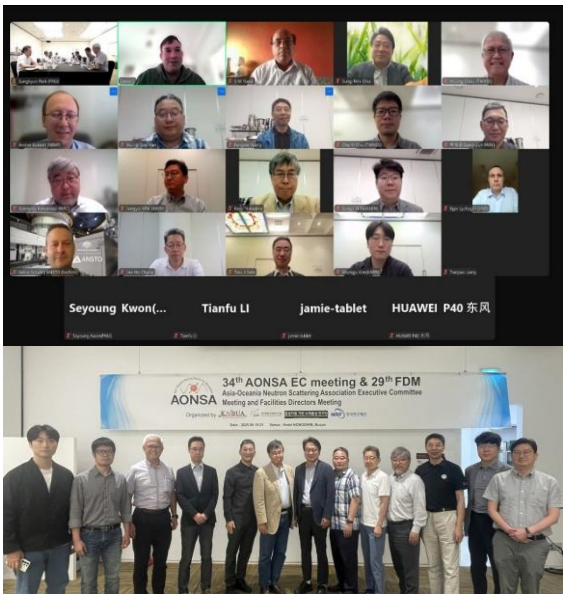
The 34th AONSA Executive Committee (EC) Meeting was held on June 21st, Saturday, 2025, by the hybrid format between Busan, South Korea, and Zoom. Sungkyun Park (Pusan NU & KNBUA) arranged the venue at Nongshim Hotel Busan for the 34th EC meeting as well as for the 29th Facility Directors Meeting on the previous day. The President S. M. Yusuf (BARC & NSSI) attended via Zoom as he could not travel to South Korea. However, the Vice President Hsiung Chou (National Sun Yat-Sen U & TWNSS) attended in person. Those who attended in person from overseas included the Treasurer Yukinobu Kawakita (JAEA & JSNS), the Member-At-Large Fang-Wei Wang (CSNS & CNSS), the Past President Taku Sato (Tohoku U & JSNS), and Che-Yi Chu (National Chung Hsing U) representing TWNSS. Kenji Nakajima of J-PARC also attended in person as an observer. Those who attended via Zoom included Tianfu Li (Chinese Institute of Atomic Energy & CNSS) and Tianjiao Liang (IHEP & CNSS). Also attended online as observers are Jamie Schulz (ANSTO), Toshiya Otomo (J-PARC), Andrei Gubkin (RosNeutro), and Egor Lychagin (RosNeutro). Finally, David Cortie (U of Wollongong & ANBUG) joined online as the past secretary and backed up the incumbent Secretary Chris Wensrich who could not attend. Finally, those who attended in person from South Korea included me and Sungkyun Park as the delegate of KNBUA; Young-Soo Han, Yongju Kim, and Jongyul Kim as observers from KAERI; and Sung-Min Choi (KAIST) as a special observer.

One of the most important discussions of the 34th EC meeting was participation in the ICNS 2025 in Copenhagen/Lund, which approached within two weeks away. A few AONSA-related activities and/or programs are to be held during the Conference: the AONSA Prize 2025 ceremony and lecture, three AONSA Science Award ceremonies and talks, the AONSA Update presentation, and finally the announcement of the ICNS 2029 proposed to be held in the Asia-Oceania region. The delegates discussed who will attend the Conference and represent the AONSA.

The 35th EC Meeting and the 30th Facility Directors Meeting will be held in Tokai, Japan, in November 2025 during the 14th AONSA Neutron School, which will be held in conjunction with the J-Parc Neutron and Muon School scheduled on November 17-21, 2025. It suggests that the 35th EC meeting will also be held in hybrid format. The meeting in November will be the last one to be held under the current AONSA Board as well as member delegates. In early October, the member societies will be notified to nominate two delegates for the next term, which will then be approved at the EC meeting in November.

See you at Tokai in November.

***Jae-Ho Chung**, Korea University*
(Public Relations Officer of AONSA)



Report on the 29th Facility Directors Meeting

The 29th AONSA Facility Directors Meeting (FDM) was held on June 20th, Saturday, 2025, at Busan, Kore, in hybrid form. A total of 25 delegates and observers participated. Following the usual self-introductions, reconfirmation of purpose & role of the FDM and the minute of the 28th FDM, facility updates were given by each delegate.

The first item discussed at this meeting was the AONSA Young Research Fellow (YRF). The status of the AONSA YRF 2025 was confirmed: one YRF is under the approval process at ANSTO, while the other could not be accepted due to the circumstances at J-PARC. Efforts are underway to relocate this YRF to another facility. Countermeasures against such mismatches between facilities and applicants were discussed and will continue to be discussed. The EC and FDM should collaborate closely to promote the YRF.

ANSTO will host AONSA neutron school 2026 by combining AONSA school with their ANSTO-HZB school.

Countermeasures against the shortage of neutron components were also discussed again and the need for exchange of experience and information was confirmed. Besides several existing opportunities, such as DENIM (Design and Engineering of Neutron Instruments Meeting) and ISSE (The International Society for Sample Environment), to share experience and information from engineering point of view, it was proposed to have workshops within AONSA to strengthen collaborations between AONSA members. Chopper and detector workshop will be organized.

It was agreed that next chair of FDM will be Prof. Taku J Sato from Univ. of Tokyo and Tohoku Univ.

Toshiya Otomo
(J-PARC center)
Chair of the 29th FDM

Report on the 30th Facility Directors Meeting

The 30th AONSA Facility Directors Meeting (FDM) was held on November 14th, Saturday, 2025, at Loisir Hotel Tokyo-Shinagawa, with the hybrid option using ZOOM. FDM started with the usual self-introductions and continued to the reconfirmation of purpose & role of the FDM and the minute of the 29th FDM. Updates of the facilities in the Asia-Oceania Region were then reported by each delegate.

The first item discussed at the meeting was the AONSA Young Research Fellow (YRF). It was reported that the proposal call for the YRF 2026 was delayed, and a renewed procedure for the YRF 2026 selection was proposed. FDM confirmed the renewed procedure without any objections. Also discussed was the hosting possibility at J-PARC; due to several difficulties including beamtime availability and VISA issuance, J-PARC will decide if they can accept YRF in 2026 after YRF review results were given. JRR-3 (ISSP) expresses the possibility to accept YRF depending on the budget and beamtime availability in Japanese Fiscal Year 2026. It is further discussed that the FDM and EC should collaborate to promote YRF. It was confirmed that young researchers in non-member countries may apply to YRF program (subject to the YRF rules). Also, it was suggested to have townhall meeting to advertise YRF program by asking facility directors to give short presentations, and to have short stories of past YRF experiences on the AONSA website.

The next discussion item was the AONSA Neutron School 2027. This will be kindly hosted by Korea Atomic Energy Research Institute (KAERI).

Status of collaborations for the shortage of neutron components was reported. For the chopper technology development, J-PARC will take a lead and organize an online workshop. Already, ANSTO, CSNS and BRIN reacted to form a workshop. For the detector development, FDM chair will volunteer to compile a list of "detector engineers, challenges and capabilities" of each facility, which will be discussed in the next FDM. It was noted that international FDM was held at ICNS 2025. Also noted was the importance of the Instrument Scientist Workshop (ISW), which was held at AOCNS in the past.

Necessity of the guideline for the common content of the facility report was reconfirmed, and FDM chair (TJS) will provide a guideline draft at the next meeting. Necessity of the list of the facilities and instruments in Asia-Oceania Region was also confirmed, and action will be taken in near future.

Finally, the next 31st FDM meeting location was discussed, and FDM decided to follow the EC decision on this matter. The 32nd FDM meeting will be held together with the Neutron School hosted by ANSTO.

Taku J Sato

(ISSP University of Tokyo and Tohoku University)

Chair of the 30th FDM

Announcement of the AONSA Young Research Fellow 2025

Dr. Yung-Hsiang Tung (National Synchrotron Radiation Research Center, Taiwan)
Hosted by ANSTO from 03/2025 to 02/ 2026
Local contact: Dr. Shinichiro Yano
Instruments: SIKA, Wombat, Echidna, Pelican

- Ph. D. Physics, Chung Yuan Christian University, Taiwan (2020).
- Postdoc. Phys, CYCU, Taiwan (2020-2021)
- Postdoc. Phys, NSYSU, Taiwan (2021-2022)
- Executive postdoc. research in JCNS-4, Germany. (2022-2024)
- Postdoc. NSRRC, Taiwan (2025-present)

Dr. Zhu Li (City Univ. of Hong Kong, China)
Hosted by J-PARC from 03/2025 to 08/2025
Local contact: Harjo Stefanus
Instruments: BL19-TAKUMI; BL14-AMATERAS

- Ph. D. Material, Nanjing University of Aeronautics and Astronautics, China (2021).
- Postdoc. , Phys. City University of Hong Kong, China. (2021-2024)
- Research Associate, Phys. City University of Hong Kong, China. (2024/07-present)

The AONSA Young Research Fellowship (YRF) program was established in early 2014 to support highly talented young scientists with leadership potential in the Asia-Oceania region, helping them to develop their career and expertise in neutron science and technology. Applications were received by the submission deadline (September 15, 2024) and reviewed by the Selection Committee for the AONSA YRF 2025.

The final selections were made by the SC in consultation with hosting neutron Facilities and officially approved at the 33 th AONSA Executive Committee Meeting held in India on November 25, 2024, in hybrid mode. It is AONSA's great pleasure to announce that two highly talented young scientists, Dr. **Yung-Hsiang Tung** and Dr. **Zhu Li** have been selected as the winners of AONSA YRF 2025, who will visit a major neutron facility in Asia-Oceania region for collaborative research using neutrons in 2025. The AONSA YRF's round-trip airfare will be supported by AONSA, and local living expenses during their Fellowship visit will be supported by the hosting Facility.

Hsiung Chou
Vice President of AONSA

Report on the Attendance at ICNS 2025

The International Conference on Neutron Scattering (ICNS) 2025 was held at the Bella Center in Copenhagen, Denmark, between July 6th and 8th, 2025, followed by the closing day on July 9th at the Loop in Lund, Sweden. I attended ICNS 2025 as a representative of AONSA and a poster presenter as well. Also attended together from AONSA are Yukinobu Kawakita (JAEA & JSNS), the Treasurer, and Taku Sato (Tohoku U & JSNS), the Past President of the AONSA. Sungkyun Park (Pusan National U & KNBUA) and Young-Soo Han (KAERI) also traveled from South Korea.

The first day at the Bella Center reportedly opened with the Opening Address by Kim Lefmann, the Conference Chair, which I did not attend. When I arrived, the first plenary talk by Joseph Bevitt (ANSTO) on neutron imaging of cultural heritages was already going on. The thoroughly enjoyable and engaging presentation was followed by two additional plenary talks on engineering diffractometry and altermagnetism, respectively. In the afternoon of July 6th was the first AONSA-related activity of the conference. The Session "Facility Updates and Instrumentation (Asia and Oceania)" opened with "Update from AONSA" presented by me. In fact, I was notified of this schedule and others less than a week ahead and prepared the slides in haste helped by Taku Sato and Yukinobu Kawakita. Nevertheless, the session room was rather small and overflowed with audiences. The presentations following mine in this sessions were "Status and Progress of China Spallation Neutron Source CSNS" by Tianjiao Liang (IHEP), "Neutron Facilities at China Advanced Research Reactor" by Tianfu Li (CIAE), "Update on HANARO Neutron Beam Instruments, Korea" by Young Soo Han (KAERI), "JRR3 Update" by Taku Sato, and "Current Status of J-PARC" by Toshiya Otomo (J-PARC).

The second day's opening also featured a short 5-minute slot for AONSA. Following the talk from European Neutron Scattering Association (ENSA), I was able to advertise the upcoming AONSA events including the AOCNS 2027 in Mumbai, India, and the AONSA Neutron School 2026 in Tokai, Japan as well as the AONSA Prize and Science Award ceremonies and talks scheduled during the ICNS 2025. The AONSA Science Award sessions were held late in the afternoon on the same day. Among the three awardees in this year, Professor Yuan Li (Chinese Academy of Sciences, China) was the first to receive the award and give a talk. Taku Sato, as the past President who played the major role in establishing the award, handed the certificate and medal to Yuan Li. It was supposed to be followed by the award ceremony of Dr. Anup Kumar Bera (BARC, India) and the talk, but he unfortunately could not attend due to unexpected personal circumstances. His certificate and medal were handed over to one of his colleagues attending the conference. Finally, the certificate and metal for Prof. Vanessa Peterson (ANSTO, Australia)

Fig. 1. I am presenting "Update from AONSA" on the first day of ICNS 2025.

were received by Joseph Bevitt on behalf of her.

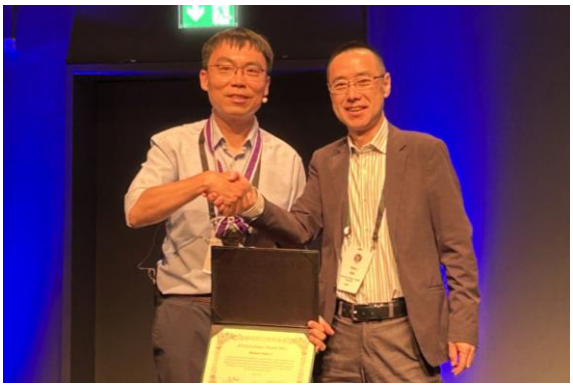


Fig. 2. Yuan Li was awarded the AONSA Science Award by Taku Sato on the second day of ICNS 2025.

On the third day, Toshiya Otomo presented "Roadmap of J-PARC MLF" in the Session "Neutron Landscape and Facility Roadmaps". It was followed by the Session "User Needs - Neutron Science - Community Interactions" which was designed to provide a discussion forum among users. Taku Sato played a role as one of the panels. I personally had a poster presentation late in the afternoon. Finally, the Conference Dinner was held at Niels Bohr Building of the University of Copenhagen's Faculty of Science, which was a few blocks away by public transport. I did not attend the Conference Dinner though. It was later said that there are many locations in the University of Copenhagen named after Niels Bohr.

On the last day, we moved to the Loop, Lund, early in the morning by buses provided by the Conference. The Loop was a science building right next to the European Spallation Source, which was also easily accessible from Lund's city center. Following the plenary talk on ILL's support facilities, there were award sessions of the three regional societies one after another. Walter Hälg Prize of ENSA was awarded to Dr. Juan Rodriguez-Carvajal (ILL) who is the author of the FullProf. It was a memorable moment for me as I was one of those whose careers were greatly benefited by the FullProf. Now, the AONSA Prize ceremony for Prof. Wen Hsien Li (National Central U) proceeded with Yukinobu Kawakita delivering the laudation and me handing over his certificate and medal. It was followed by NSSA Anne Mayes Neutron Scattering Prize awarded to Prof. Despina Louca (U of Virginia).

After the Poster Awards, it was announced in the

Fig. 3. Wen-Hsien Li was awarded the AONSA Prize 2025. Next to him are Yukinobu Kawakita and me.

Closing that the next ICNS in 2029 will be hosted in the Asia-Oceania region and the venue will be announced by June 2026. We then walked to the European Spallation Source (ESS) site for a tour. The site was very impressive with many novel instruments, spacious experimental hall and user support areas. The ESS is expected to open for experiment by 2028.

Note that the group photo of ICNS 2025 can be found on the cover page of the newsletter's current issue

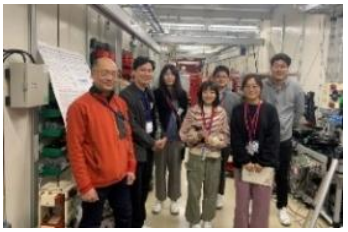
***Jae-Ho Chung**, Korea University*
(Public Relations Officer of AONSA)

Report on the 14th AONSA Neutron School

The 14th AONSA Neutron School was held at J-PARC during November 17-21, 2025, jointly with the 9th Neutron and Muon School. This school was organized by The Japanese Society for Neutron Science (JSNS), Society of Muon and Meson Science of Japan (JMMS) and nine facilities associated with neutron and muon sciences, with the cooperation of International Atomic Energy Agency (IAEA) and sponsored by International and Inter-institution Network for Accelerator Science to Next Generation (IINAS-NX), International Society for μSR Spectroscopy (ISMS) and J-PARC MLF User Society. Dr. Y. Otake was the School Principal and Dr. S. Machida was the Chair of the Local Organizing Committee.

The school received 69 applications from graduate students and young researchers from various countries [Japan (11), China (29), Indonesia (9), Kazakhstan (4), Nepal (3), Taiwan (3), India (2), Malaysia (2), Philippines (1), South Korea (1), New Zealand (1), Pakistan (1), France (1), Brazil (1)]. Due to capacity limitations for hands-on training, a review process was conducted, resulting in 38 participants attending the AONSA school. Participants learned about the characteristics of neutrons and muons and their experimental methods through lectures by leading researchers active worldwide. A total of 15 lecturers were invited, and 10 lectures related to neutron sciences were held. Furthermore, participants applied the theories to actual experiments through hands-on training using the instruments in the J-PARC MLF. Participants were assigned to one of 11 instruments (Neutron: 8, Muon: 3) and conducted a 1.5-day experiment. On the final day, all participants presented the results obtained during their hands-on training. By presenting their own work and observing presentations from other participants who trained at different instruments, their understanding of neutron and muon science would have deepened.

At the school's closing ceremony, certificates of achievement were presented to the participants. Based on their experiences at this school, the participants are expected to contribute to the future of related fields.



***Shinichi Machida** , CROSS*
(*Chair of the Local Organizing Committee)*

Report from the Chinese Neutron Scattering Society (CNSS)

As of June 2025, three neutron facilities in China operated efficiently and achieved more scientific results. The current situation of neutron sources in China is as follows:

On 11 October 2024, China Spallation Neutron Source (CSNS) achieved the 170 kW beam power on target. By installing two magnetic alloy-loaded cavities in the Rapid Cycling Synchrotron (RCS), the accelerator team successfully increased the beam power on target to 170 kW. This not only significantly improved the efficiency of the facility but also validated the key technological route for increasing the beam power for the CSNS-II project. CSNS-II has already begun construction, aiming to increase the beam power to 500 kW. It will also involve the development of 9 neutron spectrometers, as well as muon and high-energy proton experimental stations.

The China Advanced Research Reactor (CARR) run 62 days since January 2025 and 72 proposals have been conducted. Some recent research applications have been carried out on CARR, such as Single Crystal Diffraction on magnetic functional materials, Neutron Depth Profiling (NDP) on Li depth distribution in battery and B in silicon, Powder Diffraction on battery cathode material, etc.

In the past four years, the operating days of the China Mianyang Research Reactor (CMRR) have stabilized at more than 110 days. CMRR has operated 66 days until May 2025 and offered beam time for 24 users in 2025. Eleven papers have been published and the highest IF paper is 27.8 (Advanced Energy Materials). New progress has been made: the X-ray Laue diffractometer operates in dual-beam mode using a Mo-target X-ray tube, which enables simultaneous Laue diffraction for rapid crystal orientation determination and Bragg diffraction for phase analysis.

Up to date, CNSS has actively promoted domestic and international cooperation and exchanges, and hosted a series of academic conferences. CSNS held the 2024 International Advisory Committee meeting from 4 to 6 November. 20 international senior experts in accelerator, neutron, and muon science and technology serving as advisory committee members attended the meeting. This meeting marked the first international advisory committee meeting held after the initiation of the CSNS-II project. The CSNS Neutron School 2024 was successfully held from 20 to 24 November at the CSNS campus. 35 students from 19 institutions attended the school. The school provided training courses on neutron powder diffraction, covering topics such as the basics of neutron scattering, experimental operation of

neutron spectrometers, and key points in using GSAS and FullProf programs.

CARR held the first meeting for the Neutron Science Innovation Talent Branch of the China Nuclear Industry Education Society on 23 May 2025, at Beijing.

CMRR held the 22nd National Conference on Residual Stress from 28 to 31 October 2024, at Mianyang, Sichuan Province. More than 300 researchers and students, from around 100 universities, institutes, companies, etc., attended the conference. More than 100 conference reports, invitation reports and branch reports were arranged. And CMRR also held the 2024 China Nuclear Test and Analysis Academic Exchange Conference from 23 to 25 September, at Baotou, Inner Mongolia. The conference attracted more than 200 scholars, experts and young researchers from more than 60 units in the field of nuclear testing and analysis in China to share the latest theoretical achievements and exchange characteristic practical experience.

Dongfeng Chan *(CIAE)*

President of Chinese Neutron Scattering Society

Report from the Japanese Society for Neutron Science (JSNS)

1. Council and administration (FY2025)

The first meetings of the administration and the council in FY2025 were held in April and May, respectively. Some members of the council and administration were renewed (Fig. 1), and the basic policies of the society were explained by the President, Prof. Y. Otake, in each meeting.

President: Yoshie OTAKE(RIKEN)

Red color: Lady

Members of Council (18)

2024-2025 fiscal year
Osamu Yamamuro (Riken)
Masaki Fujita (Tohoku Univ.)
Rintaro Inoue (Kyoto Univ.)
Yukinobu Kawakita (JAEA)
Maiko Kofu (JAEA)
Mitsuhiro Shibayama (CROSS)
Naoya Torikai (Mie Univ.)
Masahiro Hino (Kyoto Univ.)

Newly elected (Nov. 2024):
2025-2026 fiscal year
Seiko Kawamura (JAEA)
Hazuki Furukawa (Ochanomizu Univ.)
Koji Kaneko (JAEA)
Ryoji Kiyanagi (JAEA)
Takenao Shinohara (JAEA)
Hitoshi Endo (KEK)
Junichi Suzuki (CROSS)
Kenji Ohoyama (Ibaraki Univ.)
Masaaki Kitaguchi (Nagoya Univ.)
Asami Sano (JAEA)
Elected by new system
One for each gender who is less than 50 years old and has no council experience ever.

Board of Administration

Secretary
Hirotaka Sato (Hokkaido Univ.)
Ryuji Maruyama (JAEA)

Treasurer
Satoru Kobayashi (Iwate Univ.)
Terutoshi Sakakura (CROSS)

Public-Relations
Yohei Noda (Ibaraki Univ.)
Naoki Kitamura (Tokyo Univ. of Sci.)

Events Coordination
Yasuki Okuno (RIKEN)
Takuro Kawasaki (JAEA)
Daisuke Ito (Kyoto Univ.)

Communication
Takuya Okudaira (Nagoya Univ.)
Yuki Ueda (JAEA)

Publication
Yusuke Kousaka (OMU)
Hiraku Saito (Univ. Tokyo)

Fig. 1. Members of council and of administration in the fiscal year of 2025.

In the 1st administration meeting, the works throughout FY2025 were discussed and the roles of each member were confirmed.

In the 1st council, Dr. T. Maeda, Director General of Nuclear Science Research Institute of Japan Atomic Energy Agency (JAEA), gave a speech. The policies for the revision of "Medium- to Long-term Research Strategy for Neutron Beam Utilization" in "Future Academic Advancement Initiative" of Science Council of Japan was presented by the chair of the Neutron Science Promotion Committee, Prof. M. Fujita. The link between JSNS and Japan Society of Civil Engineers was reported from the President. It was agreed that the council would be held four times in total in this fiscal year.

2. 19th Korea-Japan Meeting on Neutron Science (FY2024)

The 19th Korea-Japan Meeting on Neutron Science was held at Tokai, Ibaraki on October 13th in 2024 under the leadership of Dr. T. Honda, Chair of the Organizing Committee, and Dr. K. Nakajima, Chair of the Program Committee (Fig. 2). This meeting was held as a satellite meeting of the J-PARC Symposium 2024, with 42 participants. The presentations include welcome addresses from JSNS and KNBUA, history of Korea-Japan meeting, facility reports from HANARO, J-PARC MLF and JRR-3, 12 scientific oral presentations, and 17 poster presentations.

Fig. 2. Participants of 19th Korea-Japan Meeting on Neutron Science.

3. 24th Annual Meeting (FY2024)

The 24th Annual Meeting was held at Nagoya Congress Center in Nagoya from December 4th to 6th in 2024 under the leadership of Prof. H. Shimizu, Chair of the Executive Committee, and Prof. M. Kitaguchi, Chair of the Program Committee. This time, public lectures on neutron science were also held along with the annual meeting for the first time after the Covid pandemic.

4. 25th General Assembly, Award Ceremony, Award Lectures and Symposium (FY2024)

The JSNS general assembly, award ceremony, award lectures and symposium were held during the annual meeting. The facility reports toward a bright future were introduced to the members of JSNS in the symposium, and administrative reports were introduced to the members of JSNS in the general assembly.

The JSNS Distinguished Achievement Prize was awarded to Dr. Y. Ikeda, Science Prize was awarded to Prof. O. Yamamuro, Technical Prizes were awarded to Dr. M. Watanabe, Dr. Y. Narumi, Prof. H. Nojiri, Dr. K. Kino, Dr. B. O'Rourke, Prof. M. Furusaka, Prof. N. Hayashizaki, Dr. T. Hori, Dr. T. Fujiwara, Prof. Y. Tomota and Dr. N. Oshima, and Young Scientist Prizes were awarded to Dr. T. Yamashita, Dr. D. Ueta and Dr. T. Oda (Fig. 3). The awardees were commended for the prizes and presented their award lectures.

Fig. 3. The awardees of JSNS prizes.

5. 8th Neutron and Muon School (FY2024)

The 8th Neutron and Muon School was held at Tokai in cooperation with the J-PARC MLF and JRR-3 facilities from December 9th to 13th in 2024. About 46 participants took the online lectures and 31 proceeded to the on-site hands-on training (Fig. 4). The first half of the school was dedicated to the lectures that consisted of 9 lectures covering the basic methods of neutron and muon experiments. The latter half was for the hands-on training in which the participants split and worked on different 11 neutron and muon instruments. There was a presentation session on the last day and the participants explained what they learned to other participants.

Fig. 4. Participants and lecturers of 8th Neutron & Muon school.

6. Level 1 Workshop (FY2025)

On June 26th, 2025, the Basic Workshop on Neutron Experimental Techniques (Level 1 Workshop) was held online under the sponsorship of the Industrial Users Society for Neutron Application, the JSNS, and the Comprehensive Research Organization for Science and Society (CROSS), and with the support of Ibaraki Prefecture. Nine lectures on neutron experimental techniques, covering the basics of diffraction and inelastic scattering to prompt gamma-ray analysis, were given to 103 registered participants.

7. 20th Japan-Korea Meeting on Neutron Science (FY2025)

The 20th Japan-Korea Meeting on Neutron Science will be held at Daejeon, Korea on September 12th in conjunction with International HANARO Symposium 2025. The Japanese Society for Neutron Science aids 30 young scientists including students for the meeting participation.

8. 14th AONSA Neutron School & 9th Neutron and Muon School (FY2025)

The 14th AONSA Neutron School & 9th Neutron and Muon School will be held at Tokai, Ibaraki from November 17th to 21st in 2025. This school is led by Prof. Y. Otake, president of the school, and Dr. S. Machida, chair of the executive committee.
Web: https://conference-indico.kek.jp/event/322/

9. 25th Annual Meeting with 26th General Assembly, Award Ceremony, Award Lectures and Symposium (FY2025)

The 25th Annual Meeting will be held at RIKEN in Wako City, Saitama Prefecture from November 26th to 28th in 2025 under the leadership of Dr. T. Kobayashi, Chair of the Executive Committee, and Dr. Y. Yamagata, Chair of the Program Committee. This time, public lectures on neutron science will be also held on November 30th.

The General Assembly, Award Ceremony and Award Lectures will be held along with the Annual Meeting. A symposium is also under planning.

10. Election of council members (FY2025)

The election of some council members of JSNS will take place in the middle of FY2025.

11. Other events in FY2025

Neutron Industrial Application Report Meeting: July 17th to 18th in 2025 at Akihabara Convention Hall and online streaming.

Yoshie Otake *(RIKEN)*

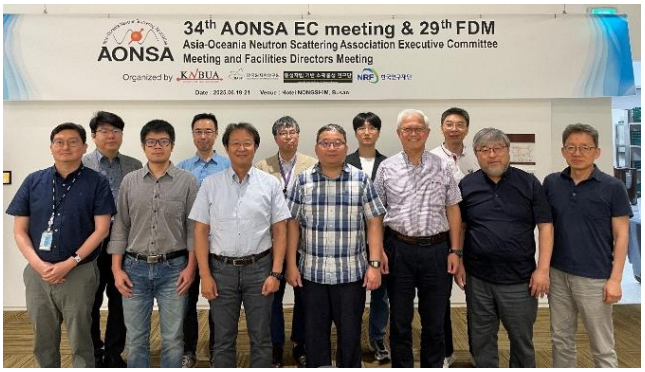
President of JSNS

Report from the Korean Neutron Beam Users Association (KNBUA)

The Korean Neutron Beam Users Association (KNBUA) had a dynamic and productive year in 2025, marked by a series of impactful meetings and collaborative scientific events that strengthened international partnerships and advanced neutron science across the region.

Hosting AONSA FDM & EC Meetings in Busan, Korea

The AONSA Facility Directors Meeting (FDM) and Executive Committee (EC) Meeting were successfully held from June 20 to 21, 2025, at Hotel Nongshim in Busan, Korea. The event was conducted in a hybrid format, allowing both in-person and online participation.



Participants arrived on June 19 and were welcomed with a friendly gathering at the hotel pub before the formal sessions began. The FDM meeting was held on the morning of June 20, followed by an afternoon excursion to the Korea Atomic Energy Research Institute (KAERI) in Gyeongju. The EC meeting took place the following morning and concluded with a farewell lunch.

A total of sixteen participants attended on-site, with many others joining online. The event was hosted by the Korean Neutron Beam Users Association (KNBUA) with generous support from the HANARO Neutron Science Division. The hybrid format promoted engaging discussions and strengthened collaboration among the AONSA community across the Asia–Oceania region.

KNBUA Executive Committee Meeting

On September 2, 2025, KNBUA held its Executive Committee Meeting online to review the association's activities and discuss strategic directions for the future. The meeting covered a wide range of topics, including post-program initiatives following the completion of the overseas dispatch program and strategies to enhance member participation in AONSA activities.

Discussions also focused on preparing the next round of proposals for "Utilizing Large-Scale Facilities," participation in upcoming AONSA EC and FDM meetings, and approaches to expand the user base as HANARO enters its full operational phase. Plans for the next Korea–Japan Neutron Science Conference were also an essential part of the agenda, emphasizing continued international cooperation in neutron research.

KNBUA General Assembly

The KNBUA General Assembly was held on September 11, 2025, during the HANARO International Symposium. As in previous years, the assembly provided a valuable opportunity to share updates on the association's activities and

achievements while fostering stronger communication and collaboration among members of the Korean neutron user community.

The 20th Korea–Japan Neutron Science Meeting

On September 12, 2025, the 20th Korea–Japan Neutron Science Meeting took place as part of the HANARO International Symposium. This year's meeting was significant, as it marked 20 years of scientific collaboration between the two nations. The program included facility reports, sessions on imaging and applications, and presentations on instrumentation and engineering. Twenty posters were presented, with contributions from both Japan and Korea. The meeting provided a vibrant platform for scientists from both countries to share research results, exchange ideas, and explore future collaborations in neutron science and technology.

The series of meetings and scientific gatherings throughout 2025 underscored KNBUA's continued commitment to advancing neutron research, nurturing international partnerships, and supporting the growth of the user community in Korea and beyond.

Sungkyun PARK, *Pusan National University*
(President of KNBUA)

Report from the Taiwan Neutron Science Society (TWNSS)

Congratulations to Professor Wen-Hsien Li on Receiving the 2025 AONSA Prize

We are pleased to share that Professor Wen-Hsien Li has been honored with the prestigious AONSA Prize 2025! This esteemed award recognizes his outstanding contributions and leadership in the field of neutron science, highlighting his significant impact on advancing research and collaboration within the Asia-Oceania region.

Professor Wen-Hsien Li is a leading figure in physics and materials science, renowned for his influential contributions to neutron scattering and advanced materials research. With a career marked by scientific excellence and visionary leadership, he has significantly shaped Taiwan's neutron research landscape. He played a pivotal role in the design and development of the cold neutron triple-axis spectrometer SIKA, located at the Australian Nuclear Science and Technology Organisation (ANSTO), which has become a key instrument for probing low-energy excitations and lattice dynamics in a wide range of materials. His leadership in the SIKA project not only advanced Taiwan-Australia scientific collaboration but also enabled numerous groundbreaking studies in condensed matter physics. Beyond instrumentation, Professor Li has been instrumental in promoting interdisciplinary collaboration, bridging physics, materials science, and engineering to tackle complex scientific challenges. His dedication to fostering talent and enhancing experimental capabilities continues to inspire the next generation of researchers in the field.

As one of the founding members of the AONSA and the founding president of the Taiwan Neutron Science Society (TWNSS), Professor Wen-Hsien Li has made profound and lasting contributions to the advancement of neutron science in the Asia-Pacific region. His receipt of the 2025 AONSA Prize is a well-deserved recognition of his outstanding achievements. The Taiwan Neutron Science Society is deeply honored to witness and share in the joy and pride of Professor Li's remarkable accomplishments.

Construction of 70 MeV Cyclotron in Taiwan

To support Taiwan's policies promoting public well-being in precision health, national defense, and strategic industries, the National Atomic Research Institute (NARI) has secured funding to establish the nation's first 70 MeV medium-sized cyclotron facility. This facility aims to accelerate the development of precision radiopharmaceuticals, ensure a stable supply of radiopharmaceutical agents, promote innovation in nuclear technology, and cultivate interdisciplinary expertise in Taiwan. This initiative also strengthens the fundamental infrastructure required for nuclear science research and industrial development in Taiwan. With great excitement and anticipation, the groundbreaking ceremony for this facility was held on June 7, 2024, at NARI, and the design and construction are currently underway.

2025 TWNSS Annual Meeting

The 2025 Annual Meeting of the TWNSS will be held on October 25–27 on the beautiful island of Penghu. This meeting aims to foster collaboration and academic exchange among researchers in the fields of neutron and X-ray scattering. It also seeks to promote the use of neutron techniques and enhance the international visibility of Taiwan's scattering research community. We are pleased to announce that this year's event will feature invited talks by leading experts from

Taiwan and abroad, covering topics such as materials applications, data analysis, and facility overviews. We warmly invite professionals and scholars in related fields to join us for this exciting gathering and engage in fruitful discussions and networking. For more information, please visit:
https://sites.google.com/gs.ncku.edu.tw/twnss2025

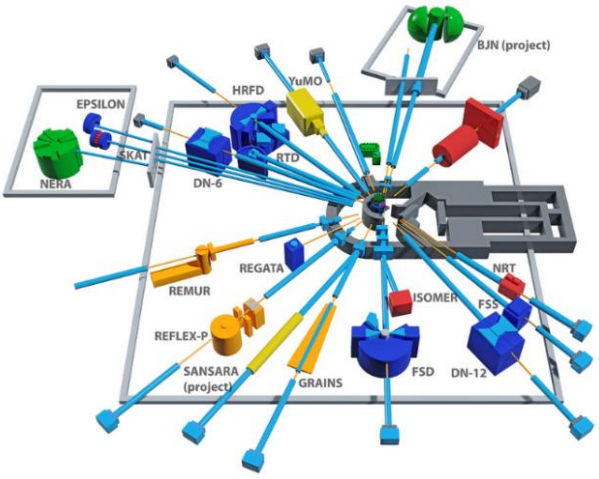
Pai-Chun Wei
National Cheng Kung University
(President of TWNSS)

Report from the Russian Neutron Scattering Society (ROSNEUTRO)

Russian neutron scattering society (ROSNEUTRO) is a public non-profit scientific association representing Russian scientists who use neutron beams to study condensed matter for scientific purposes. The ROSNEUTRO board consists of the President, vice-President and Executive Committee members who oversee the affairs of society. The number of neutron scientists registered as ROSNEUTRO members is about 290 people by 2025.

Highlights of the year

Pulsed type research reactor IBR-2 that belongs to the international intergovernmental organization Joint institute for nuclear research (Dubna, Russia) has resumed its operation at the power of 1.5 MW after a long shutdown because of technical reasons. Neutron beams user service was restarted in the second half of 2025. In total, 14 neutron instruments are available for international user program in 2026.



Petersburg nuclear physics institute (Gatchina, Russia) is in the final stage of the commissioning of the PIK reactor (100 MW). In 2025, part of the old neutron beam tubes designed back in 1970s were replaced with new ones which are optimized for modern neutron scattering applications. The components of 20 instruments that are supposed to be installed at the PIK reactor have been manufactured and delivered to the reactor site. Assembly and installation of the neutron scattering instruments is in progress now.

National research institute «Kurchatov institute» (Moscow, Russia) runs the IR-8 research reactor (8 MW). Four neutron scattering instruments among six is available for international user service programs. In total, 35 user proposals were accomplished in 2025.

The neutron scattering team of M.N. Mikheev Institute of metal physics, UB RAS (Yekaterinburg, Russia) is running neutron material science facility at the IVV-2M (15 MW) research reactor that belongs to

the JSC Institute of nuclear materials, SC Rosatom. In 2025, the state regulator granted MIMP with the new license allowing operation of the neutron material science facility until June 2035. The neutron beams user service was resumed in September 2025 at the three neutron scattering instruments.

Recent activities

In September 2025, Tomsk polytechnic institute hosted the **Conference on neutron scattering in condensed matter researches (RNIKS-2025).** For more than half a century, RNIKS has been the largest national platform for discussing the latest achievements in the theory of interactions of neutrons with matter, neutron scattering experimental techniques, study of elementary excitations, crystalline and magnetic structures in condensed matter physics, study of cultural heritage objects, life science research and fundamental research with neutrons. 144 scientists from 19 organizations participated in the RNIKS-2025 both in person and in on-line modes. 9 plenary talks, 25 invited talks, 80 oral talks and 30 posters were presented during the conference. About 30% of participants were young scientists.

ROSNETRO medal

In 2025, **Prof. V.L. Aksenov** from JINR was awarded a ROSNEUTRO medal *for outstanding contribution in development of theory and practice of neutron scattering*. During the RNIKS-2025, Prof V.L. Aksenov was awarded the medal and gave a medal talk about development of resonance neutron reflectometry at the IBR-2 facility in JINR, Dubna.

Report to the Russian academy of sciences (RAS)

In 2025, ROSNEUTRO in cooperation with the RAS Council on neutron scattering prepared a report about notable scientific results in the field of neutron scattering and fundamental research with neutrons. In total, 32 notable results covering condensed matter physics, fundamental physics, material science, life science and industrial science obtained by Russian scientists in 2024 were presented to the Russian academy of sciences and uploaded at the ROSNEUTRO website.

***Andrei Gubkin**, ROSNEUTRO*

www.rosneutro.ru

Report from J-PARC MLF (June 2025)

The mercury pump was replaced during the 2024 long-term maintenance period, and the MLF beam operation started on December 9. As this was the first replacement work of the mercury pump since the MLF started beam operation in 2008, we carefully increased the beam power during the test operation. As a result, the monitoring value of the radioactivity at the MLF exhaust tower showed a tendency to be higher than normal, and the beam operation was stopped. It was suspected that the sealing performance of the mercury pipe flanges, which were fastened during the replacement of the mercury pump, was insufficient. Therefore, we improved the remote handling method and work procedures and successfully replaced the metal O-rings with mercury pipe flanges. After resuming beam operation on April 7, favorable monitoring results from the MLF exhaust tower were observed, allowing the 900-kW proton beam user program to start on April 14. Although the beam operation had remained stable since then, water detection trouble in the Helium Vessel occurred on May 16, resulting in the beam operation being stopped for safety reasons. Subsequent investigations via remote operation and handling confirmed water leakage from the cooling channel of the target vessel. It was concluded that replacing the target vessel is the solution. We are expecting that the user program will resume on October 30.

Because of the neutron target failure, the scheduled experimental proposals from May 16 to June 23 were either postponed or canceled. The MLF status as well as the future possible schedule were widely announced to users via a Webinar meeting on May 27 and June 30 to inform the progress of countermeasures and the originally planned number of operational days for the 2025 fiscal year will be secured. For the 2025B period, new proposals only in the domestic could be applied. We received 98 applications for the general proposal, and 1 for the long-term proposal.

On April 22, 2025, J-PARC signed a Memorandum of Understanding (MoU) with Hitotsubashi University in Tokyo, which is a leading Japanese institution in the social sciences, to strengthen collaboration between the natural sciences and the social sciences. Especially, the Graduate School of Social Data Science offers interdisciplinary education and research that combines data analysis, statistics, and social science to address real-world issues through a scientific lens. This agreement aims to promote research and development at J-PARC and university education at Hitotsubashi University by utilizing each other's resources, based on data science. The MoU marks a significant step toward expanding J-PARC's impact beyond traditional scientific domains. MLF annual report 2023 was prepared, and it can be download from the site (https://mlfinfo.jp/en/reports/published.html).

Toshiya Otomo,
J-PARC center

Report from J-PARC MLF (December 2025)

On May 16, water was detected in the Helium Vessel, prompting a safety shutdown of beam operations. Remote investigations confirmed leakage at the target vessel's cooling channel. The vessel was replaced and maintenance completed during the scheduled summer shutdown, allowing the user program to resume on October 30. The program will run for 141 days in FY2025 at a proton power of approximately 780 kW, maintained until the next target replacement in summer 2027. This marks the first two-year operation with a single target vessel—a significant technical milestone for MLF.

The 2025B round was somewhat irregular due to issues with the neutron target that affected both the 2024B and 2025A periods. Since only 17 days were allocated for the round, we decided to accept only domestic proposals to avoid excessive competition. The MLF Advisory Board convened to review and approve proposals for the 2025B round: For neutron use, 78 applications have won their opportunities at MLF out of 99.

Two annual meetings focused on expanding MLF applications and research areas. The Annual Meeting on Industrial Application for Neutron, held July 17–18 in a hybrid format, promoted effective use of MLF and JAEA's JRR-3 reactor by industry. It attracted 265 in-person and 123 online participants. MLF continues to collaborate with these stakeholders to advance quantum beam utilization. Additionally, the 14th AONSA Neutron School, jointly organized with the 9th Neutron & Muon School as part of the KEK-IINAS program, took place November 17–21 at J-PARC and JRR-3. Details were described in another article in this newsletter.

Photo: 14th AONSA Neutron School/9th Neutron & Muon School

Domestic discussions on the MLF roadmap began at a workshop held on August 26, 2025, organized by M. Nakamura, N. Kawamura and colleagues. The event drew 93 in-person and 103 online participants. The current concept for Target Station 2 (TS2) of MLF was presented based on the conceptual design report (https://mlfinfo.jp/_src/resource/PEPngy9XwF/TS2CDR.pdf, in Japanese). Eleven speakers outlined future science opportunities at TS2, followed by panel discussions on potential MLF upgrades. The next workshop is scheduled for March 14, 2026.

Toshiya Otomo,
J-PARC center

HANARO Operations Back on Track

Until the end of June 2025, HANARO managed seamless operations for 119 days during the first half of this year, setting a 10-year-high record on a half-yearly basis and exceeding the yearly record of 118 days set in 2024. Thus, it is likely that the planned annual target of operations for 174 days will be reached without much difficulty. (Figure 1)

As with all the many nuclear facilities around the world, HANARO took steps to investigate into its structural safety against earthquakes in the wake of the Great East Japan Earthquake. This investigation led to the conclusion that its quake-proof structure needs to be further strengthened, so necessary constructions were undertaken from 2015 until 2017. Having been under stable operation from its birth in 1995 to the year 2014, HANARO fulfilled necessary conditions to resume its operations from 2018 as a result of the quake-proof constructions. In 2018, however, it faced a major setback when "the regulation on mandatory reporting/disclosure of accident/breakdown with nuclear facilities" was amended.

Before the amendment, mandatory reporting was relevant only to the protection (safety) systems of the nuclear reactor. After the amendment, however, the scope of reporting was extended to include not only the protection systems of the nuclear reactor but also its control (non-safety) systems. This amendment was made as an equivalent to the reporting regulations on nuclear power plants. Previously, when the nuclear reactor stopped working due to a problem with a control system of the reactor, those in charge of the reactor facilities were entitled to make a decision to restart the reactor after fixing the problem. After the amendment, however, a shutdown due to a problem with the control system had to go through the process of reporting the shutdown, investigating the cause of shutdown (the Korea Institute of Nuclear Safety) and obtaining approval for re-operation (NSSC) before starting to work again.

As a result of the amendment, it took HANARO 131 days on average to start working again after a hiatus—in contrast to less than 10 days on average previously. When its control system stopped working in December 2018 and December 2019, in particular, it took almost a year to resume operations, reducing the total period of operation over the 3 years from 2018 through 2020 to only a couple of months or so. Fortunately, efforts made by those working at the HANARO Operation Division have cut this non-working period down to about two months since 2021, contributing to a slight increase in annual operating days, but the yearly total of operating days was still less than three months. As such, the utilization of HANARO suffered severely at the expense of its many users.

In a bid to tackle this challenge, those concerned with KAERI made a wide range of endeavors. In 2021, the existing "environmental impact assessment" was rewritten in its entirety, pursuant to the rules and regulations in effect, to come up with the "radiological environmental impact assessment," which was submitted to the Nuclear

Safety and Security Commission (NSSC). Later in 2023, “a root cause analysis to boost the reliability of HANARO operations” was conducted to carry out responsive measures reported to the NSSC. At the same time, the President of KAERI, who took office in December 2022, availed himself of every opportunity to disseminate the downsides of the reporting regulations through a variety of channels. The NSSC also became clearly aware of the problems in 2023 and commissioned a policy research project to specialists concerning ways to improve regulations on the research-purpose nuclear reactor. The results from this research project justified the need to revise the regulations.

Accordingly, a regular session of the NSSC meetings in September 2024 restored “the regulation on mandatory reporting/disclosure of accident/breakdown with nuclear facilities” to resemble what it used to be prior to 2018. Thus, most of the control systems of HANARO became exempted from reporting mandates for a shutdown. As a matter of course, an exception or two still remained, and so it was not completely identical to what it used to be before 2018 when all the control systems were free of reporting mandates in case of a shutdown. Still, HANARO has regained necessary functional conditions for stable operation since September 2024.

Thanks to the restoration in 2024, not a single case of unplanned shutdown has occurred so far since April 2024. Although there was a case of power outage in October 2024, power failure was not regarded as an incident of unplanned shutdown even by the previous regulation before the restoration. As such, the remarkable records made with HANARO operations last year and in the first half of this year would have been accomplished anyway even without the amendment. It testifies to the extremely diligent and meticulous job done on HANARO by its operators. Looking ahead, it is expected that HANARO will be able to maintain its operations as long as 200 days or so per year. Big thanks, at this opportunity, to those who have extended their assistance and support from home and abroad for uninterrupted operation of HANARO.

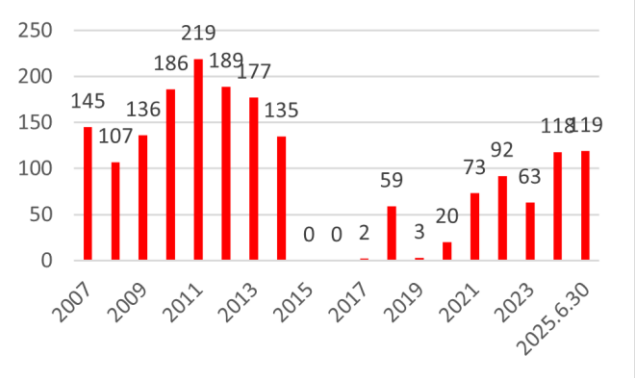


Figure 1. HANARO operation days by year

Young-Soo Han,

Korea Atomic Energy Research Institute

Report from the HANARO at KAERI, Korea

Housed and operated in the HANARO reactor are 5 thermal neutron instruments and 9 cold neutron instruments, all of which are open to users from within and outside. In 2024, those neutron beam instruments of HANARO were used by a wide array of users, such as: (1) major corporations—e.g., Samsung Electronics, Samsung Electro-Mechanics, Hyundai Motor Company, LG Energy Solution, LG Display, POSCO, Kumho Petrochemical; (2) highly-regarded universities—e.g., Seoul Nat'l University, KAIST, POSTECH, Korea University, Sungkyunkwan University, Pusan Nat'l University, Chungnam Nat'l University, and; (3) national research institutes—e.g., Korea Institute of Materials Science, Korea Automotive Technology Institute, Korea Institute of Energy Research. Users from such diverse fields in industry, academia, and research institutes worked on the instruments of HANARO to conduct their research across a broad range of subjects including secondary battery, fuel cell, semiconductor, defense materiel, soft matter, organic-inorganic thin films, structural materials, and drugs. The users in 2024 also include five of them from abroad. Forschungszentrum Jülich (FZ-Juelich), a German research institution, once conducted research with the 18M SANS, and Shanghai University in China used the 40M SANS of HANARO twice in that year. The National Institute of Standards and Technology (NIST) in the U.S. and the Energia Nucleare ed Energie Alternative (ENEA) in Italy also used the ENF and the RSI, respectively, on a single occasion.

The ratio of beam time usage, which refers to the proportion of time spent using the instruments to the total time when HANARO was in operation, exceeded 88% in 2024 in terms of 8 essential instruments of HANARO. Over 80% of the total time spent using all the instruments was occupied by users from outside, who were engaged in industrial, academic or research-purpose organizations. In particular, industrial users accounted for more than 15% of the days when the instruments were used by users from outside in 2024, testifying to the significant contributions made by HANARO neutron beam instruments to the industrial landscape of Korea.

On the other hand, "the 2024 Neutron Summer School" was held in August 2024 in a bid to expand the researcher base and boost utilization of neutron-scattering instruments. The teaching staff of the school consisted of college professors and researchers working in the relevant fields, who participated in teaching in person as the faculty of 2023 did. In 2024, the school was divided into "the Cold Neutron Summer School" for education of nano-meter structure analysis and "the Neutron Diffraction Summer School" on the subject of atomic-level crystal structure analysis. The former was held for 2 days from 6th to 7th August, and the latter for 3 days from 12th to 14th August.

As of 2023, the number of neutron beam users reached 565, and as many as 22 SCI papers were published from the instruments of HANARO. Figure 1 and Figure 2 show the number of users and

publications by year, respectively.

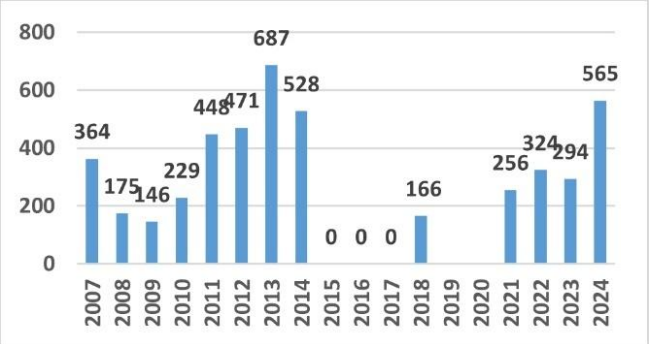


Figure 1. Number of users by year

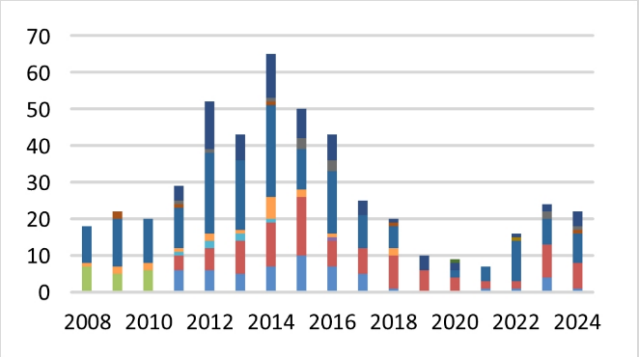


Figure 2. Number of publications by year

Young-Soo Han,

Korea Atomic Energy Research Institute

The unique pulsed neutron source IBR-2 resumed operation for users

The unique IBR-2 pulsed reactor[1] has resumed operation at the international intergovernmental organization Joint Institute for Nuclear Research (JINR). The long shutdown of the neutron source was due to the need to replace equipment and update the permitting documentation for the operation of the facility.

This sodium-cooled fast neutron research reactor was designed in the 1970s, commissioned in 1984, and upgraded between 2006 and 2010.

A unique feature of the reactor is a mechanical reactivity modulator, due to which the compact core is in a deeply subcritical state between power pulses and in a supercritical state during the pulse. With an average design power of only 2 MW,

the reactor has a fast neutron pulse width of 250 μs and a pulse frequency of 5 Hz. Thus, the pulse power is 800 times higher than the average, which makes it possible to conduct world-class research on horizontal neutron beams using the time-of-flight method. Water moderators are arranged around the reactor, and since 2012 the reactor has been equipped with a unique cold moderator based on granular solid aromatic hydrocarbons[2]. In 2021, the second cold moderator was installed and put into operation, and now about half of the instruments can use cold neutrons. The temporary structure of the source allows the use of neutrons with wavelengths up to 40 Å without pulse overlap (on a flight path of 10 m).

In regular operation mode, the reactor runs for about 2,500 hours per year. Days of reactor operation are divided into 8-9 cycles of ~12 days each. Cold moderators operate in about 40% of the cycles, in accordance with the researchers' requests.

At present, the reactor houses and provides neutrons for a suite of beamline instruments for investigations in the field of condensed matter physics, a facility for neutron activation analysis and a facility for studying radiation effects. The instruments are located on flight paths of 20-110 m, the average neutron flux density at the sample position reaches 4×10^7 n/(cm^2·s). On short flight paths, the correlation Fourier spectroscopy is successfully used, which allows determining interplanar spacings in crystals with a relative error at the level of 10^{-3}. The complex of beamline instruments comprises a suite of diffractometers, reflectometers, a small-angle neutron scattering instrument, inelastic neutron scattering spectrometer and an instrument for neutron imaging and tomography. The instruments are equipped with various sample environment devices: cryostats, ovens, load test machines, high-pressure cells, galvanic cells, external magnetic field exposure devices, etc. Two new instruments: a small-angle scattering and tomography spectrometer and a new high-luminosity spectrometer for inelastic scattering studies are currently under construction.

[1] V.N. Shvetsov, Quantum Beam Sci. 1, 6 (2017).

[2] V. Ananiev, et al., Nucl. Instrum. Methods Phys. Res. 320 (2014).

The Frank Laboratory of Neutron Physics [3] (FLNP) has also accumulated a large complex of laboratory equipment for studying samples by complementary techniques (XRD, SAXS; IR, UV and Raman spectrometers; RFA; ICP-MS; Chromatography System; AFM, etc.) and has the infrastructure for synthesizing certain types of samples.

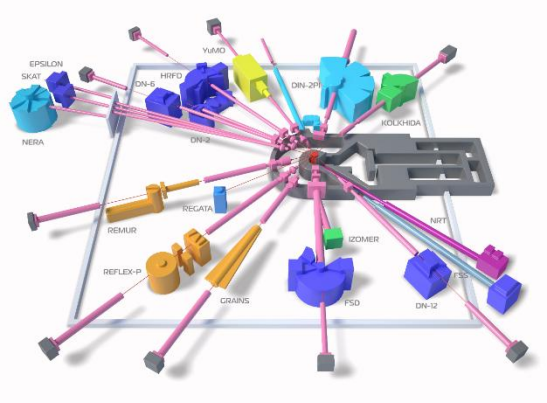
Thirteen instruments from the available suite of spectrometers are included in the User Program[4], which has been developing since the 1990s. Under this program, 65% of the beam time on these instruments is allocated to external users (55% through the Standard Access System and 10% through the Rapid Access System). Calls for standard access beamtime proposals are open twice a year: from March 1 to April 15 (for September-December of the current year) and from September 1 to October 15 (for January-June of the following year). Standard access beamtime proposals are submitted via the website https://ibr-2.jinr.int after pre-registration. Each proposal is evaluated for scientific merit by relevant international Expert Committees and beam time for experiments is granted on the basis of their peer review assessment. At present, depending on the research instrument required, proposals are peer reviewed by one of four international Expert Committees:

1. Atomic and Magnetic Structure;
2. Neutron Imaging;
3. Lattice and Molecular Dynamics, Nanosystems and Soft Matter;
4. Neutron Activation Analysis.

The Rapid Access System allows proposals to be submitted at any time without deadlines by e-mail: science.flnp@jinr.int.

Users from JINR Member States[5] can count on financial support in the form of accommodation and per diem for one participant of the experiment from one organization during the allocated measurement time. FLNP specialists not only ensure the experiment is carried out but are also ready to provide assistance in processing and analyzing the obtained results.

Egor Lychagin,
Director,
Frank Laboratory of Neutron Physics,
Joint Institute for Nuclear Research



[3] FLNP. Available online: https://flnp.jinr.int/
[4] N.E. Sidorov, et al., Phys. Part. Nucl. Lett. 21 (2024).
[5] Armenia, Azerbaijan, Belarus, Bulgaria, Cuba, Egypt, Georgia, Kazakhstan, North Korea (membership suspended), Mongolia, Romania, Russia, Slovakia, Uzbekistan, Vietnam.

Calendar of AONSA Activities in 2025-26

Date	Events
Year 2025	
September	Call for Applications to Host the ICNS 2029
November 14 & 15	30th Asia-Oceanian Facility Directors Meeting & 36th Executive Committee Meeting in Shinagawa, Tokyo, Japan
November 17-21	14th AONSA Neutron School in Japan (The 9th Neutron and Muon School) at J-PARC MLF, Tokai, Ibaraki, Japan
Year 2026	
May	Deadline for Applications to Host the ICNS 2029
June TBD	31st Asia-Oceania Facility Directors' Meeting & 37th AONSA Executive Committee Meeting (venue to be announced)