Asia-Oceania Neutron Scattering Association
AONSA

# Newsletter From AONSA

*The Asia-Oceania Neutron Scattering Association*

*Volume 9, No.1 (Sep, 2017)*


***Group photo of the 18th EC Meeting in Daejeon, Republic of Korea, on July 9, 2017***

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## President's message

***By Prof. Sung-Min Choi***
*(Department of Nuclear and Quantum Engineering, KAIST)*

The International Conference on Neutron Scattering (ICNS 2017) was held in Daejeon, Korea during July 9-13, 2017, which was attended by about 780 participants from all over the world including many colleagues from the Asia-Oceania region. This was the first ICNS held in Asia-Oceania region since AONSA was formed. We sincerely thank all AONSA colleagues including Korean colleagues for their great efforts to make the conference very successful from the bidding process and till the end. A ceremony for AONSA Prize 2017 which was awarded to Professor Nobuo Niimura was held during the ICNS 2017 (details are reported in this Newsletter). We would like to take this opportunity to congratulate Prof. Niimura again. During the ICNS 2017, we also had the AONSA, ENSA and NSSA leadership meeting on July 11, which was attended by Christiane Alba-Simionesco (Chairman of ENSA), Patrick Woodward (Vice-President of NSSA), myself and many other colleagues (details are reported in this Newsletter). At the meeting, we had very fruitful discussions for possible collaborations and closer sharing information and ideas among three organizations.

We had the 18th AONSA Executive Committee meeting and the 13th Asia-Oceania Neutron Facility Directors' meeting in Daejeon, Korea, just before the ICNS 2017 (details are reported in this Newsletter). In these meetings, we had very informative reports and fruitful discussions on facilities and various activities. I would like to mention that it was our great pleasure to have Dr. Roppon Picha from Thailand community. We look forward to having the next AONSA EC meeting in Thailand in November this year and continuing our efforts to promote neutron science in our region.

Very recently it was announced that the Chinese Spallation Neutron Source (CSNS) had the first neutron pulse on August 28, 2017. This is great news not only for Chinese neutron community and the Asia-Oceania region but also for the neutron community in the world. We would like to sincerely congratulate Chinese colleagues for their great progress!

## AONSA-ENSA-NSSA Leadership Meeting held during the ICNS 2017

The AONSA, ENSA and NSSA leadership meeting was held in Daejeon, Korea on July 11, 2017 during the ICNS 2017. The three organization leadership meeting was first held in 2011 in Toki, Japan. Since then the leadership meetings (sometimes as bilateral one) were held during major neutron conferences including the ICNS 2013 in Edinburgh, UK. This time, the meeting was attended by Sung-Min Choi (President of AONSA), Christiane Alba-Simionesco (Chairman of ENSA), Patrick Woodward (Vice-President of NSSA) and other current or former executives of three organizations (details are in the photo). At the meeting, they had very fruitful discussions for possible collaborations including closer sharing of information and ideas among three organizations, and confirmed that they strongly supported Argentina as the venue of ICNS 2021 as it was supported by the international facility directors meeting. It was agreed that they will continue to have the three organization leadership meeting at the coming ICNSs, and will also try to invite representatives from other organizations to their regional conferences.

*Yasuhiko Fujii, Chris Ling, Evvy Kartini, S. Lee, Patrick Woodward, Christiane Alba-Simionesco, Jaime A. Fernandez-Baca, Sung-Min Choi, John White, Masa Arai, Ailsa White, Mahn Won Kim, Ferenc Mezei, Yung-Soo Han (from left to right)*

## Report on the 18th AONSA Executive Committee Meeting

The 18th AONSA Executive Committee Meeting was held on Sunday July 9, 2017, at the Daejeon Convention Center, Republic of Korea. Twenty participants travelled to Daejeon for the meeting, consisting of seven Executive Committee (EC) members, eleven observers representing neutron facilities in the Asia-Oceania region, and two special observers. The meeting was held to coincide with the International Conference on Neutron Scattering (ICNS-2017), being held at the Daejeon Convention Center.

A range of technical and process matters were dealt with during the meeting. This included funding, staffing and duties of the permanent AONSA Office at J-PARC, banking arrangements, design and hosting of the AONSA web site. Of particular note, the new website was launched in March, 2017, retaining the same domain (aonsa.org).

Reports were received, and actions taken concerning the AONSA budget and financial plan, AONSA Prize, AONSA Young Research Fellow program, and the activities of AONSA member societies. It was noted that it can be difficult to find suitable candidates for the AONSA YRF from developing countries, because the funding was not always sufficient; in response, the Facility Directors expressed in-principle support for the idea of providing additional funding to leverage additional IAEA funding under a separate category of "AONSA-IAEA Fellows". Participants were briefed on and discussed the state of preparations for the joint 9th AONSA Neutron School / 2nd Neutron and Muon School, being held at J-PARC MLF from 16-20 November 2017 (http://www.cross-tokai.jp/9thAONSAschool) and the 3rd Asia-Oceania Conference on Neutron Scattering (AOCNS-2019) to be held in Taiwan in November 2019 (https://sites.google.com/view/aocns2019). The organisers of AOCNS-2019 are hoping for 350-450 participants from AONSA member countries, plus ~100 local students. The possibility of publishing proceedings from this meeting was raised; this is being actively considered, although it was noted that no proceedings were published for the 1st or 2nd AOCNS.

Jamie Schulz, Chair of the AONSA Facility Directors Meeting held the previous day, updated EC members and observers on the status of neutron facilities in the region, and reports were presented by representatives of all the AONSA member societies on local activities and developments in their home countries.

In closing the meeting, President S-M Choi thanked Sungil Park for organizing the logistics of the EC and FDM, and wished all the participants an enjoyable and productive time in Daejeon for ICNS-2017. The 19th EC Meeting will be held at TINT in Bangkok, Thailand, on November 26, 2017.

***Chris Ling***

*(Secretary of AONSA)*

## Report on the 13th Asia-Oceania Neutron Facility Directors Meeting (AONFDM)

On July 8th, 2017 the 13th Asia-Oceania Neutron Facility Directors Meeting (AONFDM) was held at the Daejeon Conference Centre, Daejeon, Korea. The participants were Chang-Hee Lee (HANARO), Xiaobai Ma (CARR), Toshiji Kanaya (J-PARC), Jamie Schulz (OPAL), Mitsuhiro Shibayama (JRR-3M), Iwan Sumirat (G. A. Siwabessy) and Fangwei Wang (CSNS). Furthermore, Sung-Min Choi (KNBUA/KAIST), Chris Ling (ANBUG/U. Sydney), Roppon Picha (TINT), Masayasu Takeda (JRR-3), Kenji Nakajima (J-PARC), Yukinobu Kawakita (J-PARC), Kazuyoshi Yamada (JSNS/KEK) and Sungil Park (HANARO) attended the meeting as observers.

The meeting was chaired by Jamie Schulz from ANSTO. At the beginning, attendees introduced themselves, discussed the purpose and the role of the FDM and then facility representatives gave a report about their facility.

The report from DHRUVA was presented by Jamie Schulz. (1) HANARO: Lee reported that the reactor building reinforcement work was completed in March 2017 and is waiting for approval from the regulator to restart. Whilst the reactor has been shut down most instruments have been improved and are ready to resume operation.(2) DHRUVA: Yusuf reported on recent commissioning results from the Neutron Time-of-Flight Spectrometer. Using a double focused monochromators they have reduced the collection times from 6 to 60 hrs. (3) G. A. Siwabessy: Iwan reported on recent upgrades to the Radiography/Tomography instrument, Triple Axis Spectrometer, SANS, HRSANS, Residual Stress and Powder Diffractometers. BATAN has hosted a number of IAEA expert missions and their staff have participated in a number of technical cooperations at other facilities in 2017. (4) J-PARC: Kanaya reported that the operation of the MLF neutron target is very stable whilst operating at 150 kW. Target no.8 is under construction and will be completed in October. The Neutron Spin Echo machine, VIN-ROSE is now operational and available to users. It is expected that the MLF neutron target will achieve 1MW in 2018. (5) JRR-3M: Shibayama reported that regulatory actions were continuing to enable the restart of the JRR-3M reactor. The ISSP has continued to support access for Japanese researchers to international facilities. (6) OPAL: Jamie reported that OPAL operated reliably for a total of 305 days from July 2016 to June 2017. The BioRef Neutron Reflectometer (from HZB) arrived safely in Australia and currently being installed. (7) CARR: Ma reported that the CARR cold neutron source was successfully installed over February to April 2017. Neutron activation analysis capabilities have also been recently added to CARR including NAA, Cold & Thermal PNGAA. A number of instruments have been upgraded. CARR staff have been completing education and experiments supported by neutron centres abroad. (8) CSNS: Fangwei reported that the project is on schedule to be completed by March 2018 with first beam on target in September 2017. The accelerator installation has been completed and commissioning has begun. The target station installation finished and the instrument installation is under way. GPPD, MR & SANS are progressing

well with expected commissioning commencing in September 2017.

A constructive discussion on the challenges, opportunities and cooperation of neutron facilities was held. It was agreed that Toshiji Kanaya from J-PARC would chair the next meeting and Jamie Schulz from ANSTO would provide support. After the meeting a banquet was kindly organised by the HANARO hosts.

The AONFDM also hosted the International Facility Directors Meeting which occurred on 10th July which was attended by 25 representatives from facilities throughout the world.

***Jamie Schulz***
*(ANSTO)*


*Attendees: Xiaobai Ma (CARR), Chang-Hee Lee (HANARO), Toshiji Kanaya (J-PARC), Jamie Schulz (OPAL), Mitsuhiro Shibayama (JRR-3), Iwan Sumirat (G. A. Siwabessy), Fangwei Wang (CSNS)*

*Observers: Sung-Min Choi, Chris Ling, Roppon Picha, Masayasu Takeda, Kenji Nakajima, Yukinobu Kawakita, Kazuyoshi Yamada, Sungil Park*

## Report from JSNS

### Activity of JSNS

The new board of JSNS was organized after half of the board members, eight persons, were newly elected. The board includes two ladies and one industry person. The 38th board of trustees was held on 15th May. Currently, the JSNS has 606 members, including 38 students and 35 supporting members. It was decided to publish HAMON articles on the web of J-STAGE from next year.

### Annual meetings

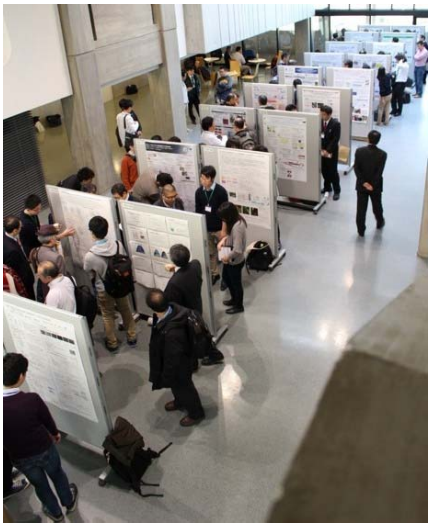
The 16th annual meeting of the JSNS was held at Nagoya University on the 1st and 2nd December, 2016. The number of the participants was 163. A photo showing intensive discussions during the poster session is inserted. At the meeting, the 14th JSNS prize was presented to Prof. T. Yamaguchi as Science Prize, as Young Researcher Prize, (1) Dr. M. Souda and (2) Dr. T. Nakajima, and Construction group of the Biomolecular Dynamics Spectrometer DNA as Technology Prize. The next 17th annual meeting will be held at Fukuoka University on 2nd and 3rd December. Then the Public Lecture organized by JSNS will be held on 17th December, where Prof. Kajita, the Nobel Prize winner, gives a talk.

### AONSA school

The joint school of the 9th AONSA Neutron School/the 2nd Neutron and Muon School is going to be held at J-PARC MLF from 16th to 20th November, 2017.This School aims at to widen the neutron and muon user societies, and provides lectures of both neutron and muon science, and opportunities of the Hands-on experiments at MLF.

### Present status of neutron sources

Reactor neutron sources are still in shutdown condition. However, KUR will restart by the end of August, 2017. JRR-3 restart will get behind schedule. J-PARC was running very stable at 150kW and changes the target by a new one to increase the power. Compact neutron sources are running steadily, and performing various experiments, such as medium angle neutron scattering, imaging, diffraction etc. A new neutron source is under construction in Aomoti prefecture as a part of the multi-purpose proton accelerator facility.



***Yoshiaki Kiyanagi***
*(Nagoya University)*

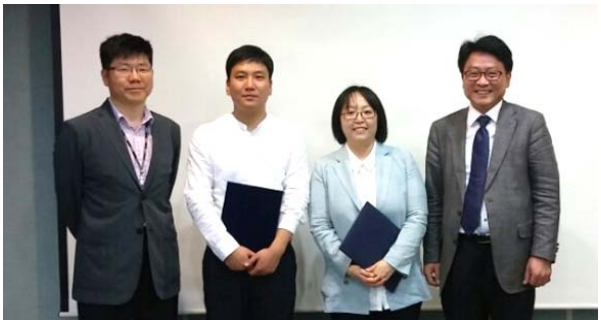
## Report from the KNBUA

### 2017 General Assembly

The 2017 General Assembly of the Korean Neutron Beam Users Association was held on 2nd June at INTEC of KAERI. Since the Hanaro Symposium was not held this year due to the two-year reactor shutdown, the 2017 General Assembly was held on the same day as one of the ICNS 2017 organizer meetings instead. Likewise, the activities of the KNBUA during the first half of year 2017 were pretty much equivalent to the organizing activities of the ICNS 2017. The assembly began by the report on the current status, which showed the total membership of KNBUA to be 352 including 174 student members. The current executive committee will continue to serve for one more year.

One of the most notable events of the assembly was the KNBUA Award for Outstanding Publications. Three best papers written by students using Hanaro neutron scattering facilities were selected. The 1st Prize was awarded to Jungju Ryu of Hanyang University (currently at KAERI) for his work using the 18m SANS. His paper on the structural deformation of hydrogel was published in Macromolecules 49, 1873 (2016). The 2nd Prizes were awarded to two battery works using High Resolution Powder Diffractometer. Sangwook Kim of Changwon National University was awarded for his work on lead-free piezoelectrics published in J. Eur. Ceram. Soc., 37, 1379 (2017). The recipient of the other 2nd Prize was Kyu-Young Park of Seoul National University, who published her work on electrodes for lithium rechargeable batteries, which was published in Energy & Environmental Science, 9, 2902 (2016).

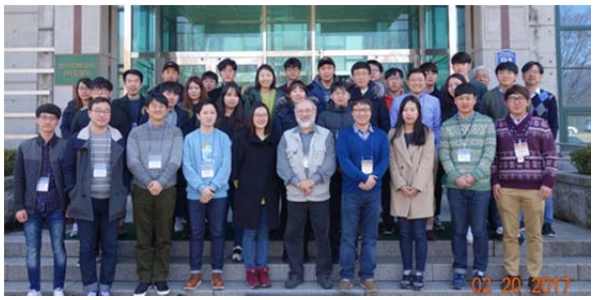
*Group photograph of the KNBUA members after the 2017 General Assembly meeting.*



*From left: Sungil Park, Jungju Ryu (1st Prize), Kyu-Young Park (2nd Prize) and Sungmin Choi*

**HANARO Winter School**

For the second time, Juan Rodriguez- Carvajal of ILL was invited to offer the course. The 2017 Hanaro Winter School for Magnetic Structure Determination from Neutron Diffraction Data was held for four days starting on February 20th. More than 30 students attended the school.




*Participants of 2017 Hanaro Winter School for Magnetic Structure Determination.*

***Jae-Ho CHUNG***
*(Korea University)*

## Australian and New Zealand Neutron Beam Users' Group (ANBUG)

A new ANBUG executive committee was elected at the end of 2016 and the group is now presided by Ian Gentle from the University of Queensland, with Tracy Rushmer from Macquarie University as vice-president. We have kept membership to the group cost-free and have just over 300 members. Activities in 2016 have focused on re-vamping our website, supporting students to attend overseas schools/conferences and involvement in organizing the ANSTO user meeting.

The ANBUG website has been migrated to a new server thanks to the hard work of executive committee member David Cortie. We are using the website to post regular news of our activities and opportunities. We are more than happy to receive content suggestions and links to relevant schools and conferences in the region.

The Australian and New Zealand neutron community was well represented at the International Conference on Neutron Scattering in Korea, and we received a lot of positive feedback on the event from our colleagues. ANBUG sponsored two students to attend the conference. We are also looking to sponsor students to attend the AONSA neutron school in Japan.

ANBUG's local facility at the Australian Nuclear Science and Technology Organisation has undergone a major restructure and satisfaction rates amongst users remain high.

This year for the first time, the ANBUG User Meeting will be run in conjunction with the User Advisory Group of the Australian Synchrotron and run as the "ANSTO User Meeting". The change is partly a result of the fact that the synchrotron is now owned and operated by ANSTO, but is also in recognition of the complementary nature of synchrotron radiation and neutron beams. Our intention is to run a more traditional AINSE/ANBUG symposium every second year while every other year will see the joint meeting, hopefully bringing the communities together and leading to more people seeing the power of using both neutron and synchrotron radiation in their research. This year the meeting will be held in Melbourne on 22-24 November. We are working hard to increase visibility of the user meeting and would welcome attendees from overseas. The annual ANBUG awards will be announced at the meeting.

***Ian Gentle*** *(University of Queensland)*
***Kathleen Wood*** *(ANSTO)*

## Present status of TWNSS

(1)New board members.

The 5th board members of TWNSS start from 2017/3/1 to 2019/2/28

The new board members are listed below

**Directions of TWNSS**

Ya-Sen Sun (President, National Central University)

Ko-Wei Lin (Vice President, National Chung Hsing University)

Chun-Chuen Yang (Secretary General, Chung Yuan Christian University)

E-Wen Huang (Executive director, National Chiao Tung University)

J. S. Tsai (Executive director, National Taiwan Normal University)

Hsiung Chou (Director, National Sun Yat-Sen University)

Chao-Hung Du (Director, Tamkung University)

She-Huang Wu (Director, Tatung University)

Hsin-Lung Chen (Director, National Tsing-Hua University)

An-Chung Su (Director, National Tsing-Hua University)

Yuan-Ron Ma (Director, National Dong Hwa University)

Mao-Tsu Tang (Director, National Synchrotron Radiation Research Center)

Jin-Ming Chen (Director, National Synchrotron Radiation Research Center)

S. -H. Chen (Director, Institute of Nuclear Energy Research, AEC)

Lee-Yih Wang (Director, National Taiwan University)

**Supervisors of TWNSS**

J. -G. Lin (Executive Supervisor, National Taiwan University)

Chih-Hao Lee (Supervisor, National Tsing Hua University)

His-Mei Lai (Supervisor, National Taiwan University)

(2) Membership

The number of member is 106 (including 57 students) in 2017

(3) 2017 TWNSS Annual Meeting

2017 TWNSS Annual Meeting will be held on September 2-4 at National Chiao-Tung University in Hsinchu City (Organizing Committee Chair: E-Wen Huang)

***Ya-Sen Sun***

*(National Central University)*

## Neutron Scattering Society of India

We are pleased to note that membership of Neutron Scattering Society of India (NSSI) has increased to nearly 200. At the same the demand for neutron scattering experiments is also increasing. Presently, about 100 projects are actively utilising the National facility for neutron beam research at Dhruva reactor, Bhabha Atomic Research Centre (BARC), Mumbai.

Recently the 6th annual general body meeting (AGM) of the NSSI was held on 17 February 2017 at Mumbai. Several organizational issues were discussed during the meeting. Among various issues it was approved in the AGM that partial financial assistance will be provided by NSSI to some Indian participants enabling them to attend the International Conference on Neutron Scattering (ICNS2017) at Daejeon, Republic of Korea during July 9 - 13, 2017. NSSI finally extended partial financial support to seven Indian participants to attend the ICNS2017.


*A group photograph of the Indian participants at the International Conference on Neutron Scattering (ICNS2017) held at Daejeon, Republic of Korea during July 9 - 13, 2017.*

Within the main aim of the society, several meetings and workshops have been organised to promote neutron science in India. After holding the 8th AONSA Neutron School and 6th conference on Neutron Scattering during Nov 2016 very successfully, a one day theme meeting is being organised on August 19, 2017. Several experts from India and abroad are coming to attend the meeting. Response for a neutron meeting from researchers across India is always overwhelming; around 100 people are expected to participate in the theme meeting.

New website for the NSSI has now been created to have an easy access for the members and others interested on neutron scattering activities in India. New website for the NSSI: (http://nssi.org.in/)

***A. Kumar and S. M. Yusuf****

***Bhabha Atomic Research Centre, Mumbai***

****Email: smyusuf@barc.gov.in***

## Neutron diffraction and neutron depolarization studies of magnetization reversal in a spinel ferrite, $CoCr_{1.85}Fe_{0.15}O_4$ at the Dhruva reactor, Mumbai

Polarized neutron spectrometer and powder diffractometer II at the National Facility for Neutron Beam Research (NFNBR) operated by Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai have been employed to study the phenomenon of magnetization reversal [A. Kumar, S.M. Yusuf, C. Ritter, Phys. Rev. B, 96 (2017) 014427; A. Kumar, S.M. Yusuf, Phys. Rep., 556 (2015) 1; A. Kumar, S.M. Yusuf, L. Keller, J.V. Yakhmi, Phys. Rev. Lett., 101 (2008) 207206] in $CoCr_{1.85}Fe_{0.15}O_4$ spinel ferrite compound [Ref.: A. Kumar and S. M. Yusuf, J. Appl. Phys. 121 (2017) 223903]. The spinel compound shows a weak magnetic ordering at 200 K (T1) and a subsequent magnetic ordering at 120 K (T2), followed by a reversal of magnetization below the compensation temperature ($T_{Comp}$), as shown in Fig. 1(a).

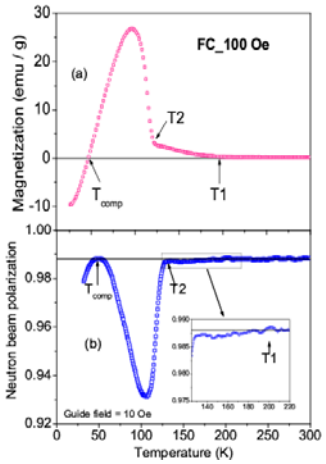



Fig. 1: *(a) dc magnetization and (b) neutron depolarization data for $CoCr_{1.85}Fe_{0.15}O_4$ spinel compound.*

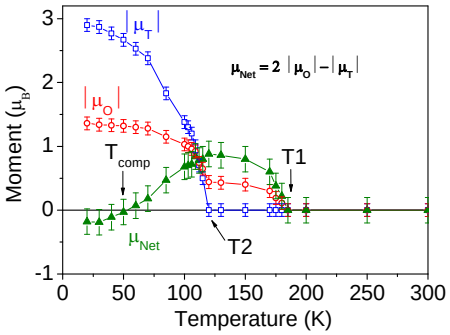



Fig. 2: *Temperature variation of tetrahedral site ($\mu_T$), octahedral ($\mu_O$) site, and net ($\mu_{Net}$) moments for $CoCr_{1.85}Fe_{0.15}O_4$ compound.*

Neutron depolarization data [Fig. 1(b)], which correspond to the product of domain magnetization and domain size, show a full recovery of transmitted neutron beam polarization at the $T_{Comp}$, indicating a zero magnetization state of domains at the compensation temperature. Neutron diffraction study (Fig. 2) reveals that the octahedral site moment grows just below 200 K (T1), whereas the tetrahedral site moment develops only below 120 K (T2), a behavior different from that expected under mean field theory. The observed sublattice decoupling (in the form of two magnetic ordering temperatures) along with unequal growth of sublattice moments as a function of decreasing temperature, is found to be responsible for a magnetization reversal below the $T_{Comp}$ in this spinel ferrite compound.

**Molecular interaction driven self-assembly in supramolecularly engineered amphiphilic macromolecules**

In this recent work, molecular interaction driven self-assembly of supramolecularly engineered amphiphilic polymers containing a supramolecular structure directing unit (SSDU) consisting of a H-bonding group connected to a naphthalene-diimide chromophore has been looked into. Directional molecular interaction in block copolymer has been found to overturn the classical norms of self-assembly driven by packing parameters. The self-assembly of two block copolymers, P1-50 and P2-50 (structures shown in Figure 1), having identical chemical structure and same hydrophobic/hydrophilic balance have been studied using small-angle neutron scattering (SANS). All the SANS measurements were carried out at the SANS-I facility in Dhruva reactor, Trombay, India.

As observed in the SANS data in Figure 2, thoughthey possess identical chemical structure and hydrophobic/hydrophilic ratio, P1-50 and P2-50 exhibit distinct self-assembled structures (polymersome and cylindrical micelle, respectively) due to only difference in the H-bonding group (hydrazide or amide, respectively) of the single SSDU.

Further, for either series of polymers (P1 and P2), the difference in packing parameters by varying the degree of polymerization of the hydrophilic block (n= 25, 50 and 100) could not alter the morphology. This confirms that in this case the self-assembly is solely driven by directional molecular interaction which is capable of overruling the existing norms in packing parameter dependent morphology in immiscibility driven block copolymer assembly. These results have been recently published in Angewandte Chemie journal in collaboration with Prof. Suhrit Ghosh and his group from IACS, Kolkata [Angew. Chem. 129, 3570–3574 (2017)].

***Debes Ray and V. K. Aswal***

*(Bhabha Atomic Research Centre)*

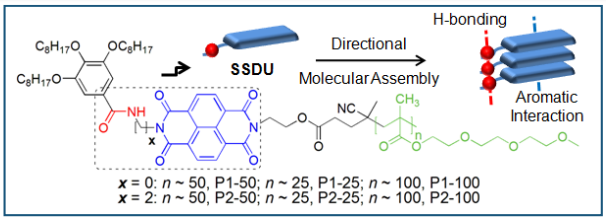



***Figure 1.*** *Structure of the two supramolecularly engineered amphiphilic polymers.*

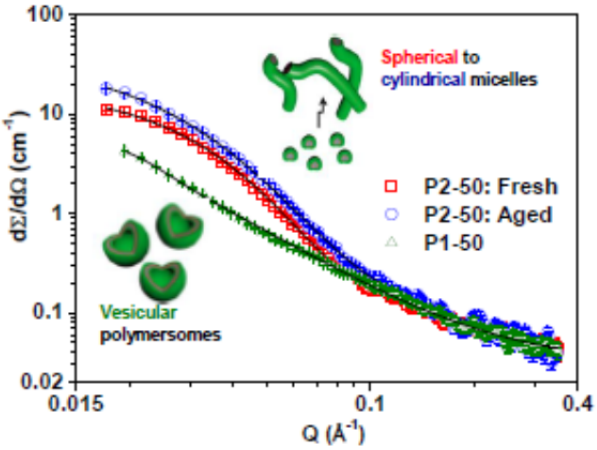



***Figure 2.*** *SANS data of P1-50 and P2-50 (fresh and aged).*

***<In memories of Dr. Subhasish Mazumder >***

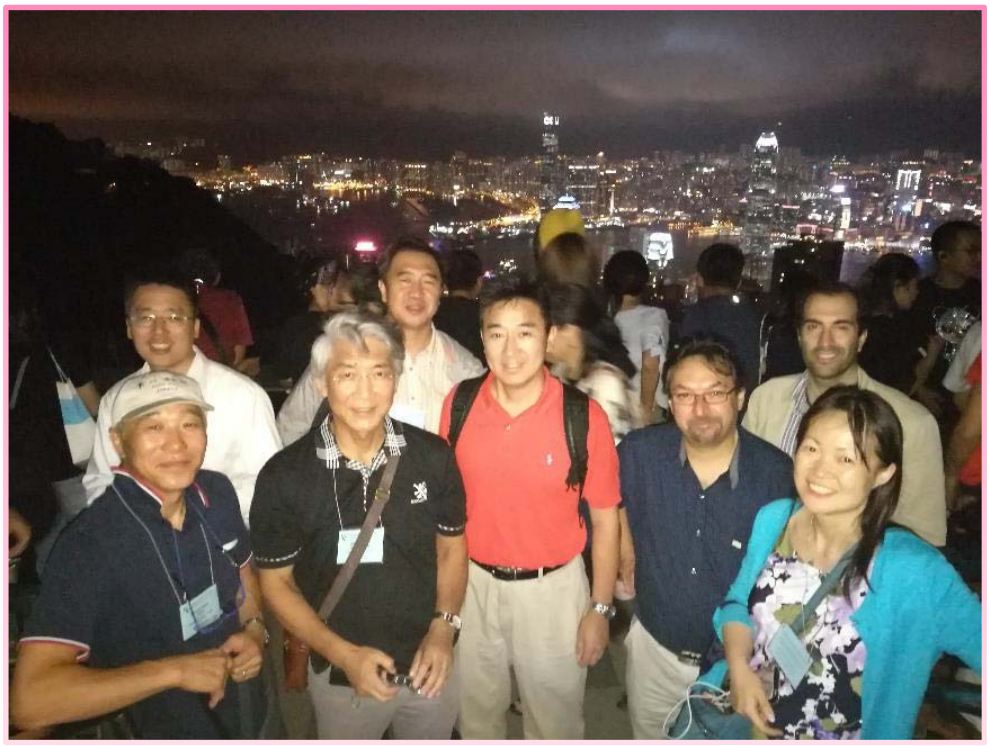
***Dr. Subhasish Mazumder, a scientist of repute in the field of small angle neutron scattering and an active member of the neutron scattering programme in Bhabha Atomic Research Centre, Mumbai had passed away on 26th March 2017 at the age of 57. NSSI mourns his untimely death.***

## Report from Chinese Neutron Scattering Society (CNSS)

On December 13th to 14th , the 584th Xiang-shan Science Conference（XSSC） on “neutron scattering in the application of materials science and engineering” held in Beijing Xiang-shan Hotel. The Xiangshan Science Conferences (XSSC) is jointly sponsored by the Ministry of Science and Technology of China (MOST) and the Chinese Academy of Sciences (CAS). The 584th XSSC focused on four topics: (1) Neutron scattering studies of residual stresses of key components; (2) Dynamic loading and service performance of advanced structural materials; (3) Multi-scale structures on the performance of advanced materials and its components, (4) technology foresight of relevant neutron instrument technology. Academicians, Chen He-sheng (Institute of High Energy Physics of the Chinese Academy of Sciences), Lu Ke (Institute of Metal Research, Chinese Academy of Sciences), Cao Chun-xiao (Beijing Institute of Aeronautical Materials), Wang Hai-zhou (Institute of Iron and Steel Research), Zhong Jue (Central South University), and Professor Wang Xun-li of the City University of Hong Kong served as executive chairman. Forty-seven experts and scholars on neutron scattering, from 17 research institutes and universities, were invited to attend the meeting and shared 16 oral presentations. The conference promoted the research and applications of Neutron Scattering in Materials Science and Engineering in China.

On August 6-11th , a Gordon Research Conference (GRC) on Neutron Scattering was held at Hong Kong University of Science and Technology. The GRC was proceeded by a Gordon Research Seminar (GRS), the first of its for the neutron scattering community, which was organized by and for students and postdocs. The 2017 GRC and GRS received sponsorship from fourteen international institutions. Three of them are from China: China Spallation Neutron Source (CSNS), Nanjing University of Science and Technology (NJUST), and Dongguan University of Science and Technology (DUT).The GRC on Neutron Scattering was launched in 2015, with Professor Xun-Li Wang of City University of Hong Kong (CityU) as Chair, with the aim to share and discuss latest discoveries in a topical area in the GRC (aka very interactive) style. Prof. Bruce Gaulin from the McMaster University (Canada) chaired the 2017 GRC, with a theme of Structure and Dynamics of Materials on Many Length and Time Scales. Prof. Hesheng Chen from the CSNS gave a keynote speech entitled “China Spallation Neutron Source-A Shining Star on the Horizon”. The inaugural GRS was co-chaired by Dr. Si Lan from NJUST and CityU together with Miss Dalini Maharaj from McMaster. The GRS provides a unique forum which not only focuses on cutting edge science but also the career development for young scientists in neutron scattering. The GRC and GRS also held a variety of social activities during the five-day meeting, including a visit to the Victoria peak visit and a squid fishing expedition(see the following photos),to further encourage informal interactions and opportunities to network. With enthusiastic support from the neutron scattering community, both GRC and GRS will both continue. Dr. Masatoshi Arai from the European Spallation Source ERIC (ESS) is chair-designate of the 2019 GRC. Dr. Victoria Garcia Sakai of ISIS (UK) and Prof. Collin Broholm of Johns Hopkins University (USA) were elected as co-chairs of the 2021 GRC.


*The group photo of the 2017 GRC and GRS.*



*The Victoria peak excursion*


*The squid fishing excursion*

## Report from the INSS

**Indonesian Neutron Scattering Society**

**http://inss.batan.go.id**

### 2017 Activities

The Indonesian Neutron Scattering Societies (INSS) became the member of AONSA since 2015. The main program at first to involve more in the activities of AONSA, such as attending the EC-FDM Meeting in China, and India, respectively in May and November 2016, respectively. Several Indonesian students were sent to AONSA neutron school in BARC, India to get more experience in neutron scattering. In 2017, INSS focus on promoting the neutron science to young scientists and students at several Universities.


Nuclear technology and application was introduced to students at Kalimantan Institute of Technology (ITK) in 12-13 March 2017. General lecture on neutron scattering for material energy was delivered by Prof.Dr. Evvy Kartini in 12 April 2017 at University of Hasanudin, Makassar. Neutron scattering Workshop was organized jointly by State University Makassar (UNM) and INSS. The participants came from various places in South Sulawesi, one of big Island in Indonesia. Prof. Dr. Evvy Kartini introduced about the INSS, followed with the lecture on neutron scattering application for lithium ion battery. Prof. Dr. Darminto introduced the various techniques, and how they are complementary to each other for probing the materials.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Dr. Edi Giri Putra explained how important the neutron scattering for biomaterial research. The students were very enthusiastic learning about neutron scattering. Besides the neutron program outside BATAN area, we held several workshop and coaching at BATAN, such as coaching on neutron inelastic scattering and neutron tomography. The participants were given not only the basic knowledge of neutron scattering, but also involved at the experiment using neutron instruments at the Neutron scattering Laboratory, BATAN. Following, the neutron scattering workshop, the introduction of the facilities at the Advanced Materials Division was organized for the lecturers and students from the Indonesian University, in 2017. They learned not only about neutron, but also the x-ray diffraction, pulsed laser deposition, etc.



Group photograph of the Neutron Scattering Workshop at UNM, Makassar, Sulawesi (12-13 April 2017).

**EC-FDM Meeting in Daejeon Korea**

President INSS, Prof. Evvy Kartini has also attended the EC meeting in Daejeon Korea and presented the INSS activities. She was invited to give a talk at the ICNS, and one other Indonesian for poster session. INSS will also send several students to study neutron at J-PARC Japan.

*EC AONSA at Daejeon July 8, 2017.*
*From left.:T.Kanaya, Chris Ling, E.Kartini, Sung Min-Choi, Kazu Yamada, Chang Hee Lee, Jamie Schultz.*

One of the most notable events of the INSS, will be the International Conference on Neutron Science and Technology Application (ICONSTA) that will be held in Yogyakarta in October 8-12, 2017 (http://www.iconsta.batan.go.id)

The conference was organized jointly with the Indonesian Materials Research Society (MRS-INA), that will also organized the first MRS-INA conference and congress (http://www.mrs-ina.org) .

The INSS with Atom Indonesia, an international journal published by BATAN, organized an International Atom Indonesia Best Paper Award (I-AIBPA). Award for Outstanding Publications (http://aij.batan.go.id) .The winners of best papers will be awarded the prize and certificate by the Head of BATAN during annual BATAN anniversary in December 2017. A good news that now Atom Indonesia has been indexed by Scopus.


***Evvy Kartini***

*(National nuclear Energy Agency, Indonesia)*

## Report from J-PARC MLF

Steady neutron target operation achieved with power of 150 kW proton beams for the 2017A user program from April 1 to the end of June. Scheduled beam time of 66 days finished with good operation efficiency of 93.4 % (Figure 1). From July, maintenance of neutron source components and 3 GeV proton beam transport facility has started.

Fabrication of the next target vessel (no.8) has almost got over the most important stage, which was assembling and welding of the main body including the mercury vessel and the water shroud. Assembling of the conventional parts such as piping and flanges to the main body will be performed as the final stage of the fabrication (Figure 2). The new target vessel will run from the autumn run at 300 kW.

Construction of POLANO (the polarized neutron spectrometer at BL23) is continued in the collaboration between KEK and Tohoku Univ., and on-beam performance test on the part of installed components has been started from June. Commissioning work of VIN ROSE (the spin-echo suite at BL06) was progressed and the part of the instrument will open to user program from 2017B period.

Call for general proposals for 2017B period was closed on June 7 and we received 286 neutron proposals. Those proposals will be sent to the Neutron Science Proposal Review Committee for reviewing process. Final results will be sent to users in September. Apart from this ordinary scheme, we newly called general neutron proposals for long term starting from 2017B with three-year validation and received 24 proposals. Nine proposals of them were selected to advance to hearing examination in the Sub-Committee/ Expert panel. The number of neutron proposals received in both schemes for general proposals was totally 310, which is our record exceeding 289 in 2014B.

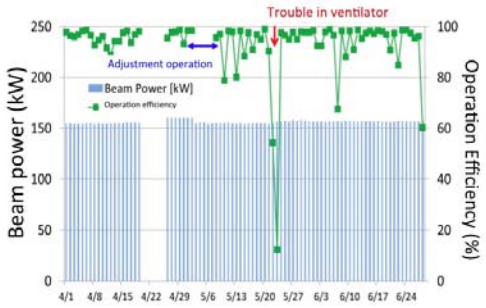



Figure 1. History of target operation (4/1-6/30, 2017).

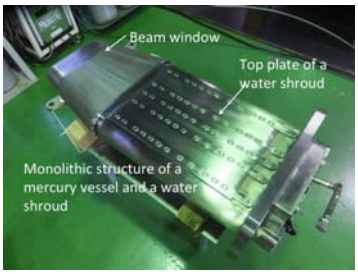



Figure 2. New neutron target (no.8) under fabrication.

***Toshiji Kanaya***
*(J-PARC MLF)*

## Report from JRR-3

JRR-3 is a 20MW class research reactor of Japan Atomic Energy Agency (JAEA). It has 31 instruments, 16 instruments (12 diffractometers/spectrometers, 2 radiography and 2 prompt gamma ray analysis instruments) are owned by JAEA, and 15 (diffractometers/spectrometers) by Universities. About 600 proposals were conducted annually until JFY2010. However, it has not been operated since the Great Earth Quake hit East Japan on March 11, 2011. Though a resume schedule for March 2018 was announced on June 11, 2016, we are still waiting for the license of restarting JRR-3. The schedule seems to be unclear at this stage. The current status is the following. (1) Evaluation against beyond design-basis accident (BDBA); almost completed. (2) Consideration of natural disasters; almost completed. (3) Reevaluation of standard seismic motions with latest findings; still in progress.

JAEA: Quantum Beam Science Center, JAEA was separated into two parts on April 1, 2016. One was merged into National Institutes for Quantum and Radiological Science and Technology (QST) outside JAEA, and the other including the neutron science group still belongs to JAEA. JAEA maintains 16 instruments. Two diffractometers for biology have been transferred to National Institute for Quantum and Radiological Science and Technology (QST).

ISSP: Because of long shutdown of JRR-3, Neutron Science Laboratory, ISSP, cannot run its General User Program of Neutron scattering. Instead, NSL is running Transferring program since 2012. It supports travel expenses for two scientists per proposal. In JFY2016, 54 persons were sent abroad, namely, OPAL, NIST, ILL, ORNL. Table 1 shows the statistics of the transferring program as of July 5, 2017. Since 2011, 63 papers have been published in refereed journals since JFY2011. The list of papers is shown in the following URL:

**http://www.issp.u-tokyo.ac.jp/labs/neutron/download/OverseasPubList.htm**

NSL continues Call-for-Papers every year to keep neutron scattering uses. For JFY2017, 106 general user proposals and 17 IRT proposals were approved. Some proposals have been conducted as a transferring program.

| Facility | | | Number of users | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | FY2011 | FY2012 | FY2013 | FY2014 | FY2015 | FY2016 | FY2017 |
| ILL | ILL | France | 3 | 9 | 0 | 4 | 3 | 1 | 0 |
| OPAL | ANSTO | Australia | 7 | 7 | 4 | 18 | 22 | 35 | 13 |
| HANARO | KAERI | Korea | 2 | 7 | 7 | 0 | 0 | 0 | 0 |
| FRM-Ⅱ | MLZ (Munich) | Germany | | 4 | 1 | 0 | 8 | 1 | 3 |
| ISIS | *Rutherford Appleton* Laboratory | UK | | 4 | 2 | 4 | 4 | 0 | 4 |
| SINQ | PSI | Switzerland | | 1 | 4 | 5 | 6 | 1 | 1 |
| NBSR | NIST | USA | | | 3 | 13 | 5 | 2 | 6 |
| BER II | HZB (Berlin) | Germany | | | 2 | 0 | 7 | 3 | 2 |
| HFIR | ORNL | USA | 13 | | 1 | 1 | 1 | 6 | 2 |
| SNS | ORNL | USA | | | 4 | 2 | 1 | 5 | 4 |
| LLB | CEA-CNRS | France | | | 1 | 1 | 1 | 1 | 1 |
| Total | | | 25 | 32 | 29 | 48 | 58 | 55 | (36) |

*Table 1. Numbers of scientists sent to overseas facilities since 2011 under Transferring program of NSL-ISSP.*

***Mitsuhiro Shibayama*** *(ISSP, U. Tokyo)*
***Masayasu Takeda*** *(JAEA)*

## Report from ANSTO

Australia's Open Pool Australian Light-water (OPAL) reactor is a state-of-the-art 20 Megawatt reactor that uses low enriched uranium (LEU) fuel to achieve a range of nuclear medicine, research, scientific, industrial and production goals.

The Australian Centre for Neutron Scattering operates the suite of neutron beam instruments at the OPAL reactor and leads Australia in the use of neutron scattering and X-ray techniques to solve complex research and industrial problems in many important fields. There are currently 13 operating neutron beam instruments available for users and 1 neutron beam instrument under construction.

Open competitive access to the neutron beam instruments is available through the Australian Centre for Neutron Scattering Customer Portal (http://neutron.ansto.gov.au). Calls occur biannually and close in September and March.

The Australian Centre for Neutron Scattering (ACNS) had a very productive year in 2016. The availability of the neutron-beam instruments achieved 97.2%. In excess of 500 users (1300 visits) performed experiments utilising ACNS' world-class neutron-scattering facilities. User feedback continued at high levels, in terms of both volume and the scores given for service by ACNS staff.

Projects to replace the existing Cold Neutron Source and install an additional split neutron guide in the TG123 neutron beam assembly are progressing well with planned installation of the TG123 neutron beam assembly in 2019. Australia has just concluded a 10 research infrastructure roadmap in which the 2nd neutron guide hall for OPAL has been included. In 2018 we are planning to commence a detailed scoping and planning study for the construction of the 2nd neutron guide hall.

We are currently installing the BioRef neutron reflectometer which was the transferred from the BER-II Reactor in Germany to OPAL in early 2017. When installed at the OPAL reactor the instrument will be named SPATZ, the German word for sparrow, which follows the tradition of the naming convention of other instruments at the Australian Centre for Neutron Scattering, which are named after Australian and other fauna.

A total of 218 proposals were received for the 2017-2 proposal round with 190 proposals approved across the neutron beam instruments, X-ray instruments & the Physical Properties Measurement System.

***Jamie Schulz***
*(ANSTO)*


ansto
OPAL Auditorium
OPAL Reactor

## Report from HANARO

HANARO had finished its structural reinforcement of the reactor building in March 2017, and then dismantlement of huge amount of scaffolding poles and work equipment, reinstallation of reactor hall facility and equipment over the wall faces and hall area, clearing and cleaning of dusting, sweeping, and scrubbing had been done for ~1.5 months under tough monitoring by Daejeon city environmental activist groups.

As the order for the nuclear safety and security commission (NSSC) to KAERI to halt the reactor operation and structural reinforcement was given March 2015 under the situation of practical operation shutdown at July 10, 2014, this means the work had taken 2 years and 8 months, which became much longer than first expectation in 2015.

Since mid-May 2017, functional checking of whole facility has been undertaken, and strict inspection toward reactor reoperation by the regulatory agency has been done up to 2$^{nd}$ week of June 2017.

In Korea, societal public acceptance over the nuclear power has rapidly varied negatively for last several years and anti-nuclear activities developed seriously, too, in Daejeon city area, inland region of no nuclear power plant, and our research reactor HANARO became one of focusing targets for those activities. After a long negotiation, KAERI made an agreement with Daejeon city government at the end of March on the safe management of nuclear facilities. Korea's new central government now pushes the nuclear power phase-out policy, too.

Based on the agreement, the citizens' verification group for the safety of Daejeon nuclear facilities was formed by 27 members of citizens, technical experts and environmental activists with city officers, too, in mid-April by focusing 3 sectors, one of which is the research reactor HANARO and its recent construction work, too. The group reported their interim report at the city hall on July 19, and raised many questions again. They are supposed to publish their final report in the end of this September. The most conflicting viewpoint is a gap between the sense of safety in technical terms and the sense of relief emotionally.

As you knew well already, there was the ICNS 2017 in Daejeon, and almost 300 attendees visited and enjoyed HANRO guide laboratories and cheered us reoperation soon.

At the time of this report writing, we have been actively talking with the citizens group on the safety of HANARO and thereby the reoperation of the reactor. Once common understanding between both parties is reached, then the NSSC will finalize the regulatory inspection officially, and then HANARO will be re-operational again within two weeks. We wish to announce our reactor operation as soon as possible and are looking forward to seeing you all here soon.

***Chang-Hee LEE***
*(HANARO)*

## Recent Progress of the Neutron Scattering Platform at CMRR

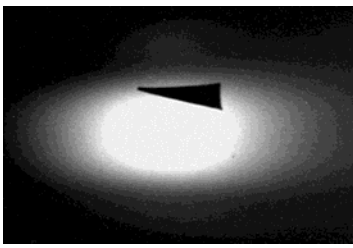
The reactor has run 78 days in the first half year and the total time will reach to 150 days this year. Intensive work has also been done for instrument improving actions. SANS (Small-Angle Neutron Spectrometer) has changed the velocity selector with GE products and adjust the collimation system, thus the cold neutron flux at the sample position is $2\times10^7$ $n\cdot cm^{-2}\cdot s^{-1}$ and nearly one order higher than before. Furthermore, ultra-thin biconcave $MgF_2$ lenses were installed and achieved a smaller minimum Q with higher neutron flux. HPND (High Pressure Neutron Diffractometer) has been upgrade with new 6.7m focusing neutron guide before monochromator, so as to the flux has been improved about one order and reached to $3\times10^6 n\cdot cm^{-2}\cdot s^{-1}$ with beam size 2×3 $cm^2$ at the sample position.

Recently, the second phase for neutron scattering instruments development has been started. Three new instruments will be built within next 3-5 years, which are a polarized thermal neutron triple-axis spectrometer (TTAS), an ultra small-angle neutron spectrometer (USANS), and a neutron standard-test beam line (NSTB) for single crystal and texture measurement, respectively. More sample environment systems will be equipped for the present spectrometers, such as high/low temperature, high pressure, superconducting magnetic field, chemical loading (hydrogen/deuterium gas environment), and so on.

The published paper increased with more users involved this year. Such as, the parameterization of Silica-Filled Silicone Rubber Morphology: A Contrast Variation SANS and TEM Study has been published in Polymer. RSND play more important role in the engineer field.

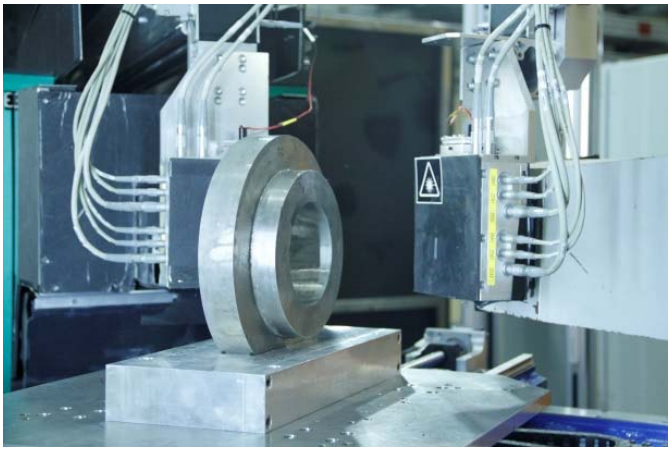
***Guang-Ai Sun***

*(CMRR)*

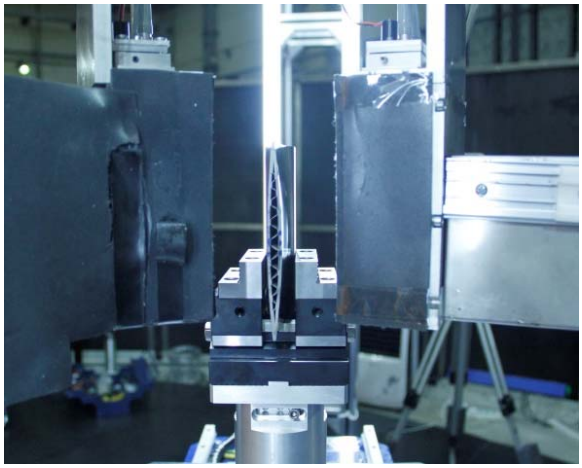



*The focusing neutron guide system of HPND (High Pressure Neutron Diffractometer)*

***The residual stress measurement of RSND***



**Ni super alloy**



**Ti Alloy**

HRPD

## BATAN's Neutron Scattering Laboratory - Facility Report

**The counting system of High Resolution Powder Diffractometer – DN3 had been upgraded to a new system that is more stable, reliable, and compact. The related software for data acquisition had also been developed.**

During experiments with the old counting system several problems frequently occurred due to the unstability of the system and bugs of its related software. Ageing problem of analog electronics was suspected as the source for this unstable condition. Lost of beam times and especially of important data made frustration to both the instrument scientist and users. To overcome this problem, a new counting system had been designed and implemented.

The old system (Fig. 1) consists of 32 blocks electronics consist of PreAmp-Amp-SCA to receive raw signal coming from 32 point detectors. A PCI based counter card was used to count the pulse from particular SCA. With the new system(Fig. 2), the 32 blocks electronics have been replaced by two modules of signal processor. Each module can handles 16 point detectors. One additional module serves as a controller with network interface. From this counter the signals are sent to the PCs via a network. The PCs itself consit of two separate PC, one serves as a dedicated server for counter and the other serves as a client. The new software based on client-server protocolwas also developed to accommodate new counting system. The new system had been tested several cycles of experiments and gave satisfactory results.

***IwanSumirat***

*(BATAN)*

*Fig. 1. Testing the detector array usingneutron source placed on the center of the sample table.*

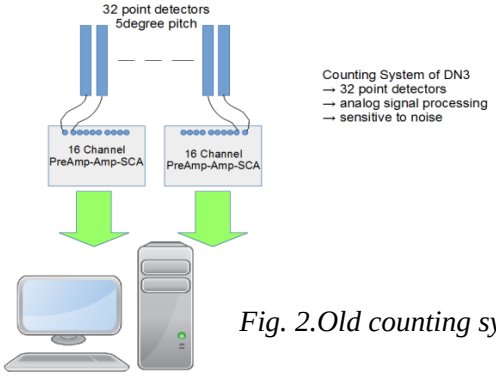



*Fig. 2.Old counting system.*

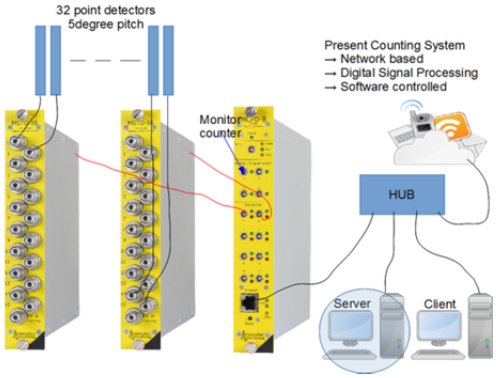



Fig. 3.New counting system.

## AONSA Prize 2017 Ceremony and Lecture

As previously announced Prof. Nobuo Niimura (Specially Assigned Research Fellow, Ibaraki University) was awarded the AONSA Prize 2017 for his seminal contributions to the development and use of neutron scattering instruments, exemplified by the invention of the neutron imaging plate and its pioneering application to neutron protein crystallography; and for his devoted mentoring of young scientists in the Asia-Oceania region.

The Ceremony of the AONSA Prize 2017 was held on July 12 in the special session of the International Conference on Neutron Scattering (ICNS2017) in Daejeon Korea just before the Conference Banquet. The session was chaired by the Vice President of AONSA, the Chair of the Selection Committee. Many audiences sitting around banquet tables congratulated for the Prize Ceremony and enjoyed the Prize Lecture. As its highlight, the President of AONSA, Prof. Sung-Min Choi awarded Prof. Niimura Certificate of Prize, Medal and Monetary Prize (US$5,000).

Prof. Niimura introduced number of his pioneering time-of-flight neutron scattering works starting from Tohoku pulsed neutron facility with electron Linac, KENS, the first spallation neutron facility in KEK and J-PARC. Among them, the direct observation of transient phenomena of crystal structure of a ferroelectric material $NaNO_2$ under pulsed electric fields done in Tohoku is one of his most famous pioneering works. He also showed many beautiful diffraction data of protein crystals taken by neutron diffractometers in a research reactor JRR-3 (BIX-3) with neutron imaging plate (NIP) and in J-PARC (iBIX) with scintillation detectors.

Prof. Niimura based on his systematic analyses of obtained results emphasized an essential role of hydrogen, hydration, protonation or hydrogen bonding in biological macromolecules and the importance of neutron protein crystallography.

Many audiences, particularly young scientists must be impressed by Prof. Niimura's pioneering works and aggressive spirit of "Never forget!" both of which are indispensable for the future of AONSA.

***Kazuyoshi Yamada***
*(Vice president of AONSA)*

## International Conference on Neutron Scattering 2017


After several years of preparations, the International Conference on Neutron Scattering 2017 (ICNS 2017) finally took place from July 9th to 13th in Daejeon, South Korea. There were 734 submitted papers in total, among which 288 oral and 394 poster presentations were scheduled to appear. In the evening of July 9th, Sunday, early arriving participants at the Welcome Reception were entertained by nice food, beer and Korean traditional rice wine.

On Monday at 9:15 AM, Kwan Woo Shin of Sogang University began the Opening Ceremony at the Daejeon Convention Center by presiding over three successive welcome addresses. The first two were given by Honorary Chairs: Dr. Jaejoo Ha, the Director of the Korean Atomic Energy Research Institute, and Prof. Mahn-Won Kim of KAIST. The Mayor of Daejeon, Mr. Sun Taek Kwon, gave the last welcome address. The ceremony was closed by the second-hand message from Mr. Sang Min Lee, the Member of the Parliament representing Daejeon. The first scientific session immediately followed, which was the first Plenary Speech by Prof. Hosono of Tokyo Institute of Technology. He discussed his recent results on hydrogen-doped Fe-based superconductors.

After the morning coffee break, the scientific sessions continued by breaking into six parallel sessions. It is probably the highest number of parallel sessions in the ICNS history, which reflected the explicit intention of the Organizers to encourage as many scientists as possible to travel to Daejeon. After the lunch break, one of the sessions was designated as Special Tribute to Herb Mook, who dedicated his life in building neutron science program in Oak Ridge National Laboratory (ORNL), USA. Five invited speeches were chaired by Jaime Fernandez-Baca of ORNL in memory of Herb Mook. The speakers included Thomas Mason, former Director of Oak Ridge and now at Battelle; Jeffrey Lynn of National Institute of Standards and Technology; Sunil Sinha of University of California at San Diego; Gabriel Aeppli of Paul Scherrer Institute, and Pengcheng Dai of Rice University. Monday was closed by the poster session, where many presenters competed for best poster awards.

The second day opened by two Plenary Speeches in the morning, one in soft matter by Tim Lodge of University of Minnesota presenting his works on block copolymer micelles, followed by Jean-Marie Tarascon of the College de France presenting his recent studies on reaction mechanisms in electrode/battery systems. They were followed by two set of breakout sessions in the similar format as the previous day. However, the lunch break was filled with nice buffet-style lunch and the second poster session of the conference. The lunch on site encouraged the participants to interact with poster presenters and the exhibitioners. Following the afternoon session, more than 300 participants visited the neutron scattering facility at Hanaro, KAERI. After coming back to the venue, the visitors were entertained with beer and fried chickens.

The third day also began by two Plenary Speeches, one by Peter Müller-Buschbaum of Technical University Munich on his broad works using GISANS, and the other by Victoria Garcia-Sakai of ISIS Facility presenting her perspectives on high-resolution spectroscopy for complex nanostructures. The daily format repeated with two sets of breakout sessions interrupted by the last poster session plus buffet-style lunch. The afternoon closed by a series of evening ceremonies. The 2017 Walter Hälg Prize was awarded by the European Neutron Scattering Association to Juan Colmenero of University of the Basque Country in Spain in honor of his innovative combination of neutron scattering with different spectroscopic methods and simulations. The 2017 AONSA Prize was awarded to Nobuo Niimura of Ibaraki University in Japan in honor of his lifetime contribution to instrumental development including neutron imaging plates for neutron protein crystallography. The final event of the day was the banquet equipped with individually served nice food. The participants were entertained by half-an-hour performance of “Nanta”, featuring kitchen-inspired and rhythm-oriented percussions. At the end, toasts were suggested by representatives of Asia-Oceania, European and American neutron scattering communities, respectively, for the sake of successful continuation of international collaborations and ICNS in particular.

Thursday, the last day of the ICNS 2017, opened with one Plenary Speech in the morning given by Pengcheng Dai of Rice University. He presented his famous works on statics and dynamics of Fe-based superconductors covering both electron- and hope-doped systems. The breakout scientific sessions on the last day were the longest of the conference, each running two hours or longer, allowing many participants to give oral presentations. Finally at the closing ceremony, Kookheon Char of Seoul National University, the Chair of the International Program Committee, delivered the report on the overall statistics of ICNS 2017. The total number of registrants reached 758 including 53 registered on site. While it failed to reach the wishful number of 800, it was still probably the highest number grossed by neutron scattering conferences. After ten best poster awards were announced and presented, the venue for the next ICNS meeting was announced. The ICNS 2021 will be held in Buenos Aires, Argentina, hosted by the Argentine Atomic Energy Commission. A short presentation was given by Rolando Granada of the Argentine Atomic Energy Commission. Finally, Sung-Min Choi announced the closing of the ICNS 2017 as the co-Chair of the conference.

In behalf of the local organizing committee, I would like to thank everybody for contributing to the successful ICNS 2017, including members of the International Advisory Committee, members of the International Program Committee, supporters and sponsors at various levels, oral and poster presenters, session chairs, poster award referees, exhibitioners, Genicom staffs, etc. Finally, I would like to thank again all the participants. See you next time in Argentina.

***Jae-Ho Chung***
*(Korea University)*


*Upper left: Mahn Won Kim giving the Welcome Address as the Honorary Chair; Upper right: Hideo Hosono at the first Plenary Speech; Middle left: Suil Sinha giving his invited speech at Special Tribute to Herb Mook; Middle left: Participants taking a moment in the Guide Hall during Hanaro Tour; Lower left: Jeff Lynn proposing a toast at the banquet; Lower right: the local organizers after the Closing Ceremony.*

## Calendar of AONSA Activities 2017

| Date | Events |
|---|---|
| Mar 10-13 | 7th Taiwan-Japan Joint Meeting on X-ray and Neutron Scattering |
| May 26 | HANARO Symposium (KAERI, Korea) |
| July 9 | 13th AONSA Facility Directors' Meeting (Daejeon, Korea) |
| July 9 | 18th AONSA EC Meeting (Daejeon, Korea) |
| July 9-13 | ICNS-2017 (Daejeon, Korea) |
| Sep 25-27 | International Nuclear Science, Technology and Engineering Conference (iNuSTEC2017, Uniten, Kajang, Malaysia) |
| Oct 8-12 | International Conference on Nuclear Science and Technology Application(Yogyakarta, Indonesia) |
| Nov16-20 | 9thAONSA Neutron School/2ndNeutron and Muon School (Tokai, Japan) |
| Nov25 | 13th AONSA Facility Directors' Meeting (TINT, Bangkok, Thailand) |
| Nov 26 | 19th AONSA EC Meeting (TINT, Bangkok, Thailand) |
| Nov 27 | TINT Neutron Symposium (TINT, Bangkok, Thailand) |
| Dec 2-3 | 17th JSNS Annual Meeting (Fukuoka, Japan) |