Newsletter From AONSA

The Asia-Oceania Neutron Scattering Association

Volume 7, No. 2(December, 2015)

The 15th AONSA EC Meeting in Tokai, Japan

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President's message

By Prof. Wen-Hsien Li

Professor

Department of Physics

National Central University

Jhongli, Taiwan

AONSA Spirit

On the 4th of December, the EC welcomes the Indonesia Neutron Scattering Society (INSS) joins AONSA as a regular society member. Looking into the growing and enhancing AONSA activities, the EC has also approved to increase the Board members from five to seven representatives. It is a very fruitful EC meeting to receive not only one new society member but also two invitations of from Mianyang Facility and from Thai Community for hosting EC meeting. This will bring our users a step closer to the Mianyang and Thai neutrons. I am sure that the strengthened AONSA will have more energy and resources to bridging the User and Facilities. AONSA now received six regular member Societies with two additional very active Observers, and is talking to nine Facilities. International sharing of human minds and hardware resources is the key for better uses of natural and created resources. The very internationalized and idea collecting AONSA will receive and exchange experiences, cultures, as well as resources from a board point-of-view to fit Regional and even Global needs and cares. I believe that this is the AONSA Spirit. AONSA is now in her position to take a step forward in setting up the platform and running the Programs to generate dynamical scientific throughput and strengthen the cooperation between human brains and created machines in our Regions. A bright future of AONSA is there for us to reach and for us to create further.

Many thanks to Indonesia and Japan Communities for hosting the Neutron School in 2014 and 2015. I am very much fascinated by the Reports that the students are able to put up in a short four-days school time. Many of them are as good as one can see in a conference. I can see our neutron future from there. Many thanks to the Australia Community for hosting the 2nd AOCNS. The gathering was nicely fitted, the communications is ongoing and the platform is memorable. Many thanks to all the EC members for your great contributions and supports accompanied through the 2014-2015 Presidency term. Effective and generous works from Sun-Min, form Chris, from Dongfeng, and from Hideki of the Board help to organize and run the AONSA activities and programs effectively and smoothly. Special and many thanks to Chikako Doda and Izumi Kuwahara. Your heedful management has the AONSA office very effectively organized. AONSA will step into her fifth Presidency term in 2016, leading by Professor Sung-Min Choi. The fresh minds will drive AONSA into a new era. Continuous supports, contributions and participations are the key for the AONSA to success. I wishing you all and the families have a very happy and healthy New Year.

The 15th EC Meeting in Tokai

The 15th AONSA Executive Committee (EC) Meeting was held at the Neutron Science Laboratory, ISSP, Tokai, Japan on December 4, 2015. This coincided with the week of the 7th AONSA Neutron School taking place at the J-PARC facility in Tokai, in which many of the EC members participated. The EC meeting was attended by 18 participants and was opened by AONSA President Prof Wen-Hsien Li, who welcomed all members and observers to Tokai and thanked the local organisers. He also took the opportunity to express his appreciation to J-PARC for hosting the AONSA Office since the founding of the Association, and to the Ms Chikako Doda and Ms Izumi Kuwahara who run this office.

Several important items were discussed in the morning. Firstly, an application by the Indonesian Neutron Scattering Society (INSS) to join AONSA as a full regular member was presented by Prof Evvy Kartini from BATAN. This was unanimously approved by the EC, making INSS the 7th member of AONSA. For more information please see the INSS website http://inss.batan.go.id/ (also linked from the AONSA home page).

Prof Wen-Hsien Li noted that AONSA now has 7 regular members but only 5 positions in the Board. Various options were proposed and discussed, and ultimately it was accepted that one or more Members-at-Large (without pre-defined roles, although special roles may be assigned as needed) would be added to the Board. Article 5.1 of the AONSA Articles was emended to reflect this change (see the AONSA home page for details).

Nominations for Members and Observers of the AONSA EC for the 2016-17 term were presented and approved (see the AONSA home page for details). One notable change here was the addition of a third observer from China, Prof Guang-Ai Sun of CMRR, reflecting the increased engagement of the Mianyang facility with AONSA.

Subsequently, nominations for AONSA Board Members for the 2016-17 term were presented and approved. Most importantly, Prof Sung-Min Choi of KAIST becomes AONSA President from 1 Jan 2016. The Vice-President, who will become President in 2018, will be Prof Kazuyoshi Yamada of Nagoya University. Other new Board members include Prof Hsiung Chou of National Sun Yat-Sen University, who becomes Public Relations Officer, and Prof Evvy Kartini of BATAN who becomes the first Member-at-Large.

A broad range of topics were actively discussed during the day, including: the AONSA budget; the AONSA Prize; the 8th AONSA Neutron School in 2016 in Mumbai, India; ICNS2017 in Korea; AOCNS-2019 in Taiwan; the AONSA Newsletters; the AONSA Homepage; the AONSA Young Visiting Fellows scheme; collaborations and cooperation with ICSU, IUCr, AOFSRR, AAPPS, ENSA and NSSA. AONSA member neutron associations and affiliated community reports were delivered in the afternoon.

Finally, the EC meeting was attended by two Special Observers from the Thailand Institute of Nuclear Technology (TINT), Kanchalika

Dechates and Roppon Picha. They presented an overview of neutron and synchrotron research activities in Thailand. They indicated that TINT would like to become involved in AONSA and would be willing to host an AONSA EC meeting in the near future. This offer was accepted by the EC and tentatively scheduled for November 2017.

The 16th EC meeting will be held in Mianyang, China, on May 31, 2016.

Chris Ling
(*Secretary of AONSA*)

I

The AONSA Young Research Fellows 2016

Dr. Su-Ji Park

Dr. Ting-Ping Hou

Dr. Hua Yang

The AONSA Young Research Fellowship program, which was established in 2014, is 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. The selections of AONSA Young Research Fellows are made every year and this is the second round of the Fellowship program. All applications were received by the submission deadline (August 31, 2015) and reviewed by the Selection Committee for the AONSA Young Research Fellows 2016. The final selections were made by the Selection Committee in consultation with Directors of hosting neutron facilities, Bragg Institute at ANSTO (Australia) and J-PARC (Japan), and officially approved at the 15th AONSA Executive Committee Meeting on December 4, 2015 in Tokai, Japan. The Fellows' round-trip airfares are supported by AONSA, and their local living expense during their Fellowship visits are supported by their hosting Facilities.

It is AONSA's great pleasure to announce that three very talented young scientists, Dr. Su-Ji Park (HANARO, KAERI, Korea), Dr. Ting Ping Hou (Wuhan University of Science and Technology, China) and Dr. Hua Yang (China Spallation Neutron Source, China), have been selected as the AONSA Young Research Fellows will visit major neutron Facilities in the Asia-Oceania region for collaborative research using neutrons in 2016. Dr. Park, who received her PhD in Materials Science and Engineering at POSTECH in 2015, will visit J-PARC to investigate "Visualization of Micro-structural Evolution of Na-alloys during Sodiation and Desodiation using Energy Resolved Imaging Technique". Dr. Hou, who received her PhD in Materials and Metallurgy, Wuhan University of Science and Technology in 2012, will visit Bragg Institute at ANSTO for "Small-Angle Neutron Scattering Study of Alloy Carbide M6C in Heat Resistant Steels". Dr. Yang, who received his PhD in Polymer Science and Engineering at Changchun Institute of Applied Chemistry, Chinese Academy of Science in 2015, will also visit Bragg Institute at ANSTO for "GISANS Investigation of Polymer Thin Films and Data Analysis Method Development".

Sung-Min Choi

(President of KNBUA)

7th AONSA SCHOOL

The Asia-Oceania Neutron Scattering Association (AONSA) Neutron School Neutron School at J-PARC was planned and canceled two times, previously; 2011 due to the disaster of the Great East Japan Earthquake and 2013 due to the accident at the Hadron Experimental Hall in J-PARC. Therefore we are greatly delighted to hold the 7th AONSA Neutron School from December 1 to 5, 2015 at J-PARC in Tokai, Japan. This school was jointly held with the 3rd MLF School, which means both the lecture and the hands-on experiment on muon science were provided for the first time in AONSA Neutron School. Totally, the 41 postgraduate students and early-career researchers came from Iran (1); USA (1); Malaysia (2); Taiwan (3); China(4); India (4); Indonesia (5); Australia(6); Korea(7); Japan (8) had attended this school. Among the participants, 9 students from developing countries have been supported for their travel expenses by IAEA and AONSA.

Lectures were provided by 11 scientists from JSNS/Japan (Prof. Toshiji Kanaya, Dr. Kenji Nakajima, Dr. Norifumi L. Yamada, Dr. Kenji M. Kojima, Prof. Takashi Kamiyama, Prof. Osamu Yamamuro, and Prof. Yoshiaki Kiyanagi), TWNSS/Taiwan (Prof. Wen-Hsein Li), KNBUA/Korea(Prof. Sung-Min Choi, and Prof. Jae-Ho Chung), and ANBUG/Australia(Prof. Chris Ling). Students were divided into twelve groups, and a variety of hands-on experiments were carried out at each group. Unfortunately, due to the problem with neutron target the neutron and muon beams were not delivered during this school. However, all students had prepared a sample for neutron and muon experiments, and studied the data analysis using during previous experiments. The excellent group presentations given in the last day have proved that all students had precious experiences at this school. In addition to the formal program, an excursion was arranged to visit the Japan Aerospace Exploration Agency (JAXA) at Tsukuba and Asakusa at Tokyo.

We wish to thank the lecturers and instrument scientists for their dedicated efforts in stimulating the interests of the participants; as well as AONSA, IAEA and the Japanese Society for Neutron Science (JSNS) for their financial assistance provided to attending students.

Toshiji Kanaya
(J-PARC)


The 7th AONSA Neutron School
The 3rd MLF School
1st-5th December 2015 at J-PARC, Japan
AINSE


AONSA/MLF
SCHOOL
Dec. 1~5. 2015


楽座

10th Asia-Oceania Neutron Facility Directors Meeting

On Dec. 3rd, 2015 the 10th Asia-Oceania Neutron Facility Directors Meeting (AONFDM) was held at the Guest House, Neutron Science Laboratory, Institute for Solid State Physics, The University of Tokyo, Tokai, Japan. The participants were Chang-Hee Lee (HANARO), Mitsuhiro Shibayama (JRR-3), Jamie Schulz (ANSTO), Hesheng Chen (CSNS), Toshiji Kanaya (J-PARC), and apologies were received from Yuntao Liu (CARR), Sutiarso (BATAN) and Jian Gong (CMRR). Observers of the meeting included Wen-Hsien Li (AONSA President), Sung-Min Choi (AONSA Vice President), Hideki Seto (AONSA Public Relations Officer), Yukinobu Kawakita and Kenji Nakajima (J-PARC), Shuichi Wakimoto and Masayasu Takeda (QuBC, JAEA).

Shibayama chaired the meeting in place of Liu. Shibayama began the meeting with a summary of the last meeting. Then representatives from each facility provided a report on their facility: (1) HANARO: Lee reported on the reinforcement and re-start plan which is expected to be completed in 2016 with a planned reactor restart in September 2016. In 2015 HANARO has sent scientist abroad to other facilities to allow them to continue their scientific research. He-3 production will start soon and will be available in Korea in 2017. (2) JRR-3: Shibayama reported that damages by the Great East Japan Earthquake have not diminished the safety of the JRR-3. JAEA had confirmed that JRR-3 conforms to new regulatory requirements that have been introduced post the earthquake. Shibayama advised that the Quantum Beam Center will be reorganized. ISSP's transferring program/travel support to overseas is on-going. (3) J-PARC: Kanaya reported that the MLF user program has been suspended due to a target problem which occurred in November. It is planned that the MLF will operate at 200kW (<500kW) after target replacement and it will be difficult to give additional beam time to users. The MLF has 4 new instruments which include BL068VIN (ROSE), BL22 (RADEN), BL23 (POLANO) and a new biomaterial single crystal diffractometer which is being constructed at BL10. The 1st Japan-Korea Joint Workshop on Polarized Neutron Reflectometry was held on 30 July 2015. (4) ANSTO: Schulz reported that the OPAL reactor and cold source continue to run very well. ANSTO has received approval from the regulator to commence user operations of the BILBY SANS instrument. The Helmholtz-Zentrum Berlin (HZB) which will shut-down its reactor in 2019, has agreed to transfer the BioRef neutron reflectometer to ANSTO. Other notable achievements included: 50 papers from the Bruker-SAXS, TAIPAN beryllium filter has taken first data and served first users and the Physical Property Measurement System (PPMS) has arrived and has taken first data. (5) CSNS: Chen reported that the civil construction is approximately 98% completed and will be completed by the end of 2015. The water seepage of the tunnels fixed. Utility installation is progressing well with many systems already available. The manufacture of the accelerator and experimental systems are going smoothly and the installation has commenced. CSNS expects the first neutron beam in September 2017. (6) BATAN: Kartini reported that the G.A. Siwabessy Reactor operated 153 days per year with a mode of 5-days on and 9-days off at 15MW power. All of the neutron beam instruments are functioning well and ready to be used for experiments. Battery research continues and is a National project. (7) CARR: Chen reported that the reactor has been operated at 60MW & 30MW since July 2015 which allowed standard samples to be measured at CARR. The 3rd national conference on neutron scattering was held in Beijing from Nov. 8-11, 2015.

Other topics discussed at the meeting include the AONSA Visiting Fellows, 7th AONSA Neutron School and how to promote the applications and cooperation of neutron facility centers in Asia-Oceania region.

Mitsuhiro Shibayama
(The University of Tokyo)

Report from JSNS

1. Present status of JSNS

The number of members of JSNS is 602 (including ~41 students), and 37 supporting members. JSNS activities after the previous EC meeting are summarized below.

- Extraordinary Council Meeting was held on August 3rd, 2015 mainly to decide the budget for the 2015 fiscal year.
- 35th Regular Council Meeting was held on November 11th, 2015.
- AONSA school was held at J-PARC in Tokai from December 1st-5th, and finished successfully.
- 15th JSNS Annual Meeting was held on December 10th-11th, 2015 in Wako. (Chair: Dr. Otake)
- 5th Public Lecture of Neutron Science was held on December 12, 2015 in Wako just after the annual meeting.
- Meeting for improving financial condition of JSNS was held twice.

2. HAMON, JSNS Journal

In this fiscal year, in addition to regular articles submitted by readers, a series of introductory courses on pulsed neutron experiments at J-PARC is being provided to members. In the issue published in February, a special feature will be devoted to honor memory of Professor Noboru Watanabe who was known as an excellent researcher in the field of pulsed neutron.

3. 13th JSNS Prizes

JSNS prizes were awarded to eight persons introduced below.

a) JSNS Outstanding Achievement Prize

Susumu Ikeda (Emeritus Prof. KEK)

"Observation of quantum states of hydrogen in materials by using pulsed neutron sources"

Dr. Ikeda

b) JSNS Science Prize

Yoshiaki Kiyanagi (Nagoya University)

"Research and development of pulsed neutron sources"

Dr. Kiyanagi

c) JSNS Young Researcher Prize

1. Maiko Kofu (University of Tokyo)

"Study on hierarchic structure and dynamics of ionic"

Dr. Kofu

2. Noriki Terada (NIMS)

"Study of multi-ferroics by using high pressure neutron diffraction"

Dr. Terada

JSNS Technology Prize

1. Takanori Hattori (JAEA),
   Asami Sano (JAEA),
   Hiroshi Arima (Tohoku Univ.)
   “Construction of a ultra-high pressure neutron diffraction instrument and realization of neutron diffraction experiment under high temperature and high pressure condition “

Dr. Hattori

Dr. Sano

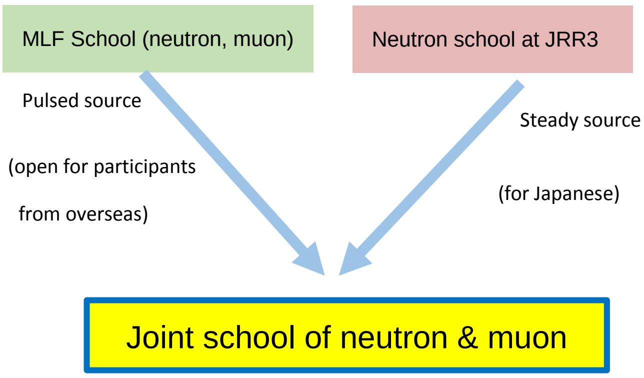
Dr. Arima

2. Yoshihisa Iwashita (Kyoto University)
   “Development of optical control of pulsed neutrons by using magnetic field “

Dr. Iwashita

4. New system of the neutron school for a joint neutron and muon school

There are different schools for neutrons, one is the MLF school and the other is the neutron school at JRR3. We are now discussing to make a new system to hold a joint school to enhance effectiveness and also to reduce load.



The joint school will be hosted by JSNS, J-PARC, industrial User Society for Neutron Application, ISSP of U. Tokyo, Nuclear Human Resource Development Center of JAEA, CROSS, Ibaraki Pref., Society for Muon and Meson Science of Japan, IMSS of KEK.

➢ Active Merit:

*Very unique school including pulsed and steady neutron sources and even muon source

*strengthen collaboration between J-PARC and JRR3

Support from neutron and muon societies (Lecturers from all Japan)

➢ Passive Merit:

Unexpected and unfavorable shutdown is covered each other

(Organizing Committee)

Yoshiaki Kiyanagi from JSNS
Toshiji Kanaya from MLF, J-PARC,Tomotsugu Sawai from Nuclear Human Resource Development Center of JAEA,Makoto Hayashi from Industrial User Society for Neutron Application and Ibaraki Pref.Mitsuhiro Shibayama from ISSP, University of Tokyo,Hideaki Yokomizo from CROSS-Tokai, Jun Sugiyama from Society for Muon and Meson Science of Japan,Hideki Seto from IMSS KEK

Secretary

Yukinobu Kawakita (J-PARC), Shuichi Wakimoto (QuBS, JAEA), Takenao Shinohara (J-PARC),Koji Yoshida (Fukuoka University)

Working Committee

Mitsutaka Nakamura (Neutron, J-PARC), Kenji Kojima (Muon, KEK), Keiichi Sakagami (UO, J-PARC), Hiroshi Kato (NHRDC, JAEA), Makoto Hayashi (IUSNA), Kiyotaka Izawa (Ibaraki Pref.), Junichi Suzuki (CROSS), Takatsugu Masuda (ISSP), Kenya Kubo(SMMSJ)

5. 15th JSNS Annual Meeting

Dec. 10-11, 2015Wako Citizen Public Center
Sponsorship: JSNS, RIKEN
Organizing committee chair:Y.OTAKE (RIKEN)
About 200 Participants
108 Oral & Poster presentations

Incidental Business by JSNS during the annual meeting

Industrial Use Seminar (Dec. 11)
“Industrial Application of Small-size Neutron Sources”
Industrial Use Consultant Desk
Public Lecture (Dec. 12)
“Power of Neutron Beam”

6. Open Lecture

"Power of Neutron Beam"

Dec. 12, 2015

Wako Citizen Public Center

100 Participants estimated.

1st lecture: Kunihiro SUZUKI (JAEA)

"From secret of beautiful skin to the mystery of the universe beginning–Usefulness of Neutron Beam–"

2nd lecture: Tetsuya YAMAMOTO (Tsukuba Univ.)

"Shooting cancer cells –Neutron Capture Therapy–"

3rd lecture: Yoshie OTAKE (RIKEN)

"Safety and Security Observed by Small-size Neutron Sources"

7. 7th AONSA Neutron School & 3rd MLF School

Dec. 1-5, 2015 @J-PARC MLF

Sponsored by AONSA, JSNS, IAEA, Society of Muon and Meson Science of Japan,

J-PARC MLF, CROSS, ISSP, Ibaraki Prefecture, AINSE

School Organization

School Principal: T. KANAYA (KEK),

Vice-principal: K. Nakajima (J-PARC)

Participants: 41 (Japan: 13, Australia: 10, South Korea: 7, Indonesia: 4, India: 4,

Taiwan: 3, Malaysia: 1, China: 1)

Instruments:Inelastic scattering (BL01, BL02, BL12, BL14)

Diffraction (BL03,BL08/BL20, BL11, BL18, BL19, BL21)

SANS/Reflectometry (BL15, BL16/BL17)

Imaging (BL22)

Muon (D1)

8. Present status of neutron sources in Japan

Present Status of Neutron Sources

(Compact sources)

Industrial users are interested in the use of the compact sources and have recognized their usefulness. Now only two compact neutron sources, HUNS and KUANS, are providing the neutron beam for neutron science use. RANS will restart in January.(High power sources)

In this year we had trouble twice on the target @J-PARC/MLF. Users hope to restart it as soon as possible. Operation on schedule is strongly desired, not power.

Restart of JRR3 and KUR is desired strongly but not yet clear when they restart.

Yoshiaki Kiyanagi

(President of JSNS)

Report from KNBUA

As of 2015, the Korean Neutron Beam Users Association (KNBUA) have 334 members, which has grown by 11 % from the previous year. The number of student membership is 158, which is slightly less than a half. The current executive board (President: Sung-Min Choi, KAIST) is serving the term starting in May 2014 and ending in May 2016.

The Steering Committee Meetings

The KNBUA executive board holds regular steering committee meetings approximately four times a year. Since the release of the latest newsletter, there was one meeting held on August 28th, 2015, in Daejeon. Discussions were exchanged on broad subjects including the financial matters, workshop and schools, ICNS preparation, AONSA activity report, and subgroup activities. Dr. Byoungwoo Kang of the POSTECH's Department of Materials Science and Engineering was invited as the second speaker of the KNBUA Young Scientist Lecture Series, which was launched early this year for the purpose of inviting and encouraging young members into the KNBUA activities. He received his Ph. D. degree in 2009 from Massachusetts Institute of Technology by his research on cathode materials for high power and high energy density storage. After two more years of postdoctoral fellowship at the same department, he joined the Department of Materials Science and Engineering of the POSTECH as an assistant professor in 2011. He was promoted to be an associate professor in this year. At the August meeting, he presented a talk titled "Developing Cathode Materials by Using Neutron Scattering."

Since the primary workforce of the KNBUA is currently focused on the ICNS preparation effort, majority of the board members in fact get together once every month. The steering committee meeting is usually called in conjunction with one of those ICNS preparation meetings. The August meeting was one of such cases, and so will the next meeting on December 18th. It is expectable that such arrangement will continue to be seen throughout the next year.

Other Activities

The annual HANARO Neutron Scattering User Training course was provided from August 19, 2015, for three days by the Neutron Science Division of the Korea Atomic Energy Research Institute (KAERI). The primary focus of the course was the structural analysis using the neutron diffraction data, both powder and single crystalline. The Rietveld refinement method was instructed using the FullProf suite as the analysis software. Additionally, the basic theory and applications of inelastic neutron scattering method was introduced as a short lecture. Just a week later between August 26th and 28th, the 2015 Cold Neutron Summer School was also held at the KAERI in Daejeon. In this annual summer school co-organized by the Neutron Science Division of the KAERI and the Advanced Research Center for Nuclear Excellence of KAIST, 38 students participated and learned the basics of neutron small angle scattering and reflectivity technique. In this winter, the KAERI is also planning to hold a winter school on the structural analysis between February 22^{nd} and 26^{th}, 2016. They will invite Juan Rodriguez-Carvajal of ILL, the author of the FullProf Suite, as the lecturer. Applicants to this winter school must submit a statement of research in order to be considered an admission.

The KNBUA is continuing its effort to provide financial supports to students working on neutron scattering. Sungkyun Park (Pusan National University) arranged to support four students attending the 7^{th} AONSA Neutron School in J-PARC, Japan, in December. Full travel cost was reimbursed through the Center for Korean Users of J-PARC program. The funding program for students traveling to overseas neutron facilities, initiated by Sung-Min Choi, is running successfully with visible demand. As of November 31^{st}, 18 students in total have been supported for approximately USD 2,500 per person. Eight or nine more students are expected to benefit from this program ending on May 31^{st}, 2016.

Jae-Ho Chung

(Korea University)

Neutron Scattering Society of India

The membership of the Neutron Scattering Society of India (NSSI) has reached ~175. Towards forthcoming events, NSSI will be a co-organiser of the 8th AONSA Neutron School proposed to be held in Mumbai during November 15-19, 2016. It is also planned to organize the 6th Conference on Neutron Scattering, following the school, during November 21-23, 2016. It may be noted the 3rd AONSA neutron school was also organized at BARC in 2010. The School is aimed for Ph. D. students, Post doctoral fellows, early-career researchers and new comers in the area of neutron scattering from the Asia-Oceania region. It will be composed of Class-room lectures and Hands-on experiments using the Facilities at the Dhruva Reactor aiming to familiarize neutron scattering technique per se, highlight its potential for various applications, in particular to emphasize its merits over other probes for condensed matter research.

The Conference on Neutron Scattering, 6th in the series, will focus on development of facilities, and applications to emerging areas of new materials and novel scientific phenomena. Some experts from outside India are also expected to participate in the conference.

Five NSSI members have attended the 2nd AOCNS held in Sydney, Australia, during July 19-23, 2015, thanks to the generous financial support provided by the organizers. Partial financial support was provided to three of them by NSSI.

Prof.Ramaprosad Mukhopadhyay

(Bhabha Atomic Research Centre)

The 3rd Chinese Conference on Neutron Scattering and Workshop on Applications of National Neutron Facilities 2015

The 3rd Chinese Conference on Neutron Scattering and Workshop on Applications of National Neutron Facilities 2015 was held in Beijing on Nov. 8~10 2015. This conference was jointly organized by CNSS, China Spallation Neutron Source (CSNS), China Institute of Atomic Energy (CIAE), China Mianyang Research Reactor (CMRR) and China Center of Advanced Science and Technology (CCAST), and hosted by CIAE and Peking University (PKU). More than 150 participants from 36 universities and institutes participated in this conference. The conference aimed to provide a platform for the exchange and cooperation between the scientists and researchers in the field of neutron scattering at home and aboard.

The latest progress of Neutron Scattering Platform at CMRR, CSNS, Neutron Scattering Platform at CARR (China Advanced Research Reactor), and CPHS in Tsinghua University were reported by Jian Gong, Yuanbai Chen, Yuntao Liu and Qingzi Xing, respectively. Moreover, many scientists shared their recent work and experience each other in the fields of diffraction, inelastic scattering, large-scale matter, stress and texture diffraction, instrumentation and other neutron related technique. This conference greatly promotes the development and application of neutron scattering technique in China.

During the conference, the attendees visited the neutron scattering platform at China Advanced Research Reactor (CARR).

Hesheng Chen and Dongfeng Chen

China Neutron Scattering Society (CNSS)

Report from ANSTO

Australia's Open Pool Australian Lightwater (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 Bragg Institute 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 12 operating neutron beam instruments available for users and 1 neutron beam instrument under commissioning.

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

In 2015 the OPAL Research Reactor reached a significant milestone producing a cumulative total of 500 refereed research articles in the scientific literature and in July the two-year anniversary of the full return to reliable cold-neutron service at OPAL was also celebrated.

In the last financial year (July 2014-June 2015), both the cold neutron source and the reactor itself have operated for more than 300 days.

Two instruments have been added to the user program in 2015 and include the Taiwanese SIKA cold-neutron 3-axis spectrometer and the BILBY time-of-flight small-angle neutron scattering instrument. In addition two facilities have also been made available to the user program and include a beryllium-filter option on the TAIPAN thermal 3-axis spectrometer and a Quantum Designs Physical Properties Measurement System (PPMS), including a vibrating-sample magnetometer, AC susceptibility, heat capacity and transport measurements at magnetic fields up to 9T. The EMU backscattering spectrometer is expected to be included in the user program in 2016.

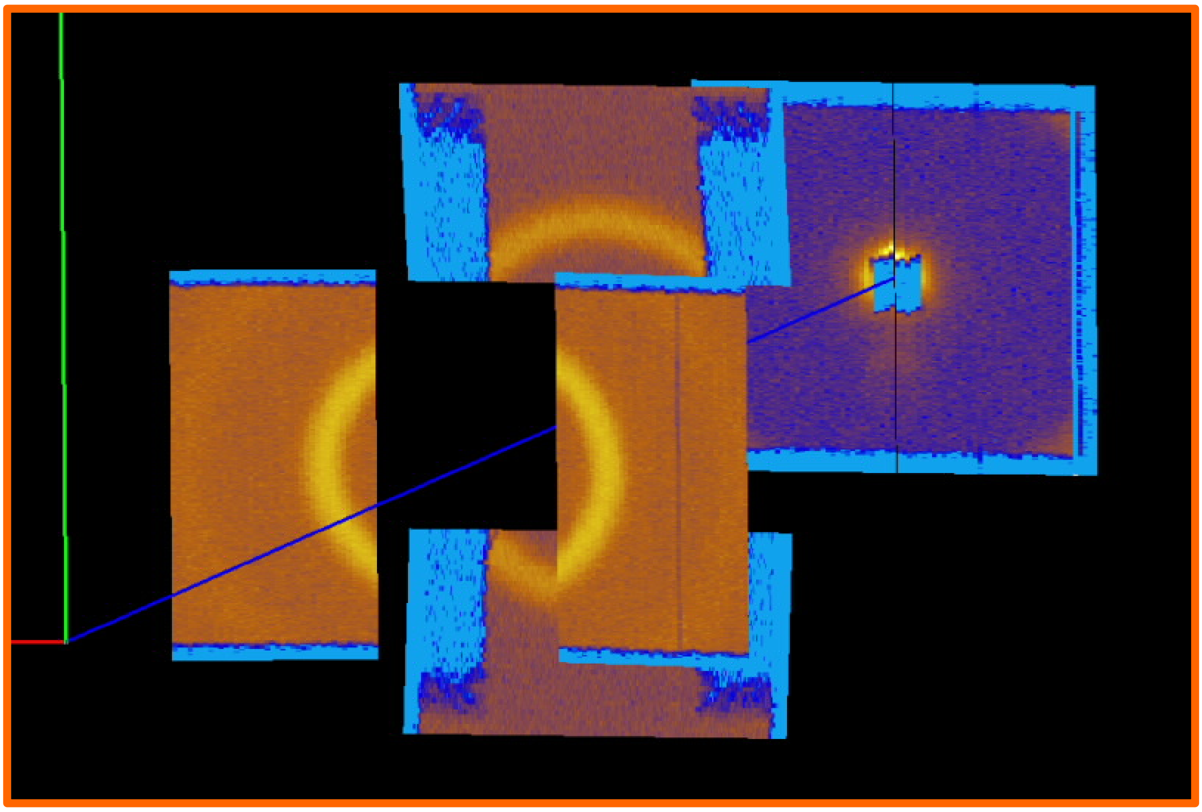
ANSTO has signed high-level agreements on scientific collaboration with both the J-PARC spallation source (in Tokai, Japan) and the Helmholtz Zentrum Berlin (HZB), which operates the BER-II research reactor in Berlin. The BER-II is scheduled to cease operations in 2019 and under the HZB agreement the BioRef reflectometer will be transferred from the BER-II research reactor to OPAL, making BioRef the 14th instrument at OPAL.

A total of 581 proposals were received for the 2015-2 & 2016-1 proposal rounds with 359 proposals approved across the neutron beam instruments, National Deuteration Facility and X-ray instruments.

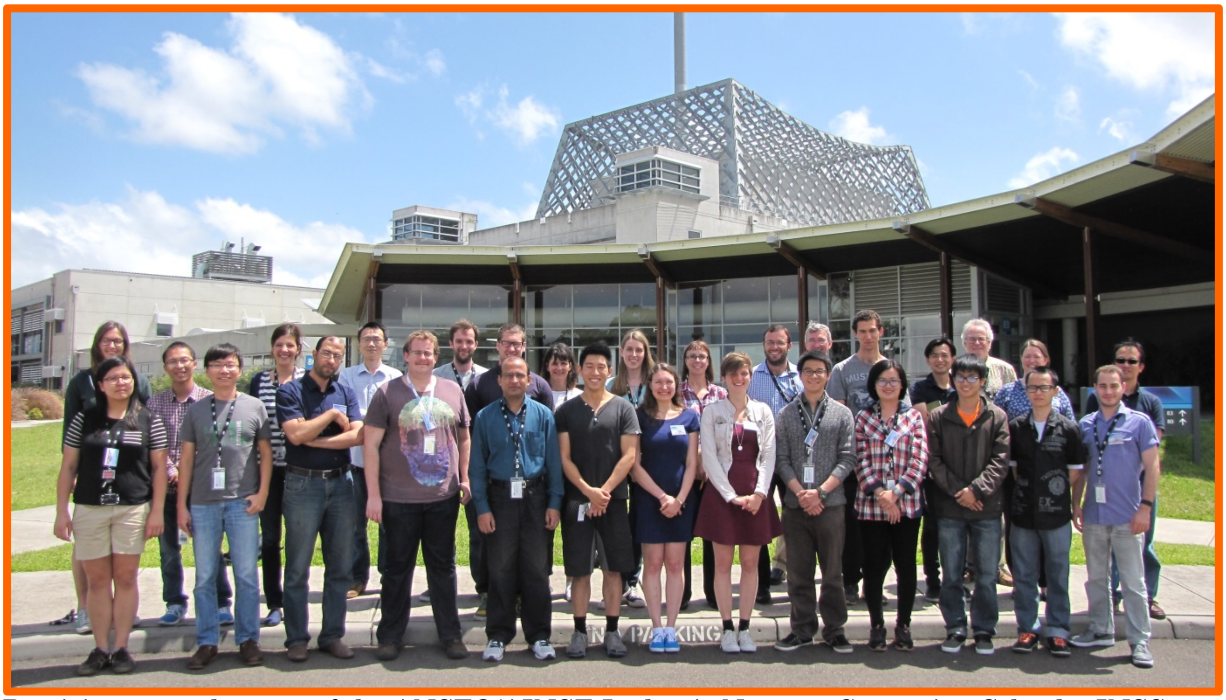
The ANSTO-Australian Institute for Nuclear Science and Engineering (AINSE) Inelastic Neutron Scattering School (INSS 2015) was held at ANSTO/AINSE between the 22nd and 27th of November 2015. This school aimed to provide an introduction for junior researchers to advanced neutron scattering techniques and focused on instrumentation for dynamical studies at the Bragg Institute. The workshop was attended by 20 junior researchers from Australian universities

(15), New Zealand universities (1) and Taiwanese scientific research organisations (4).

Robert Robinson* and *Jamie Schulz
(ANSTO)



SANS scattering pattern from a silver behenate standard on all BILBY 6 detector panels.



Participants and tutors of the ANSTO/AINSE Inelastic Neutron Scattering School – INSS 2015

Current Status of J-PARC MLF

The J-PARC MLF resumed the user program with the power of 500 kW on October 27th. However, we had to stop the operation due to a trouble of the target vessel since 20th of November. The problem was leakage of cooling water of the target, which occurred inside the target shroud and was different from that happened in last April. A photo of the target vessel before installing to the experimental hall is shown in Figure 1. There was no leakage of the radioactive materials from the target vessel to the outside of the facility. We have been investigating the source of the problem. We decided to replace the target vessel to a spare one and will resume the user program with the low power of 200 kW in the middle of February, 2016.

We resumed the user program with 18 neutron instruments and commissioning activities for 2 beam lines, but they were interrupted on 20th November due to the problem mentioned above. All beam line scientists are now communicating with users whose experiments are suspended by the accident, for future resume of these experiments.

We organized the joint school of the 7th AONSA Neutron School & the 3rd MLF School from 2nd to 5th of December. This is reported in a separated article in this Newsletter.

Toshiji Kanaya
(J-PARC)

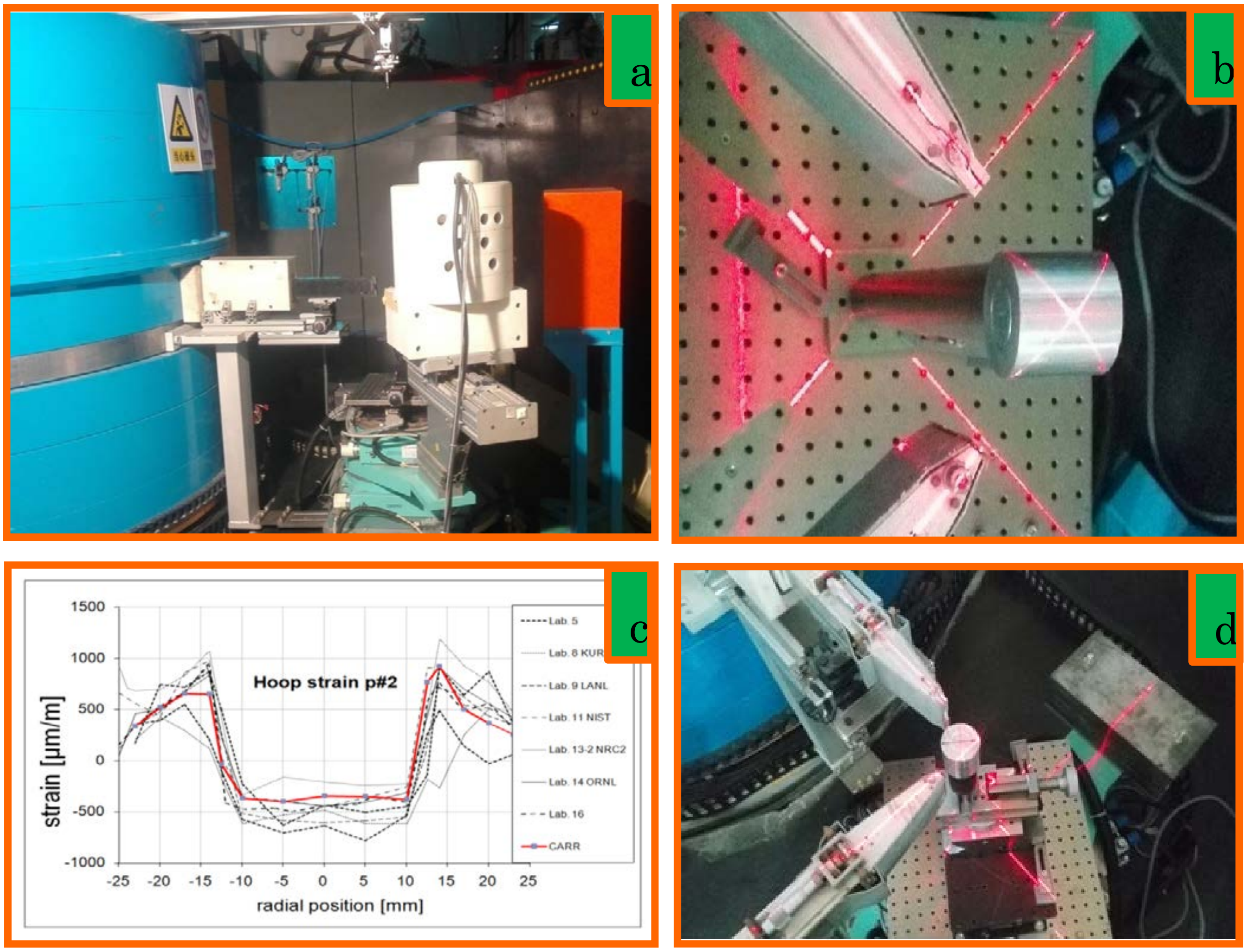
A photo of the target vessel

Recent Progress of the Neutron Scattering Platform at CARR

CARR has run for 200 hours in 2015. More and more time of neutron flux could be used to optimize the performance of instruments or carry out experiments. AS one of the nine instruments of the phase Ⅰ at CARR, residual stress instrument was very important in the industry application field. The measurement of VAMAS 2# (international standard sample for residual stress instrument) was performed on it, as shown in figure 1b, 1c and 1d. These results indicate that the comprehensive performance of residual stress instrument at CARR has reached the international level of the similar instrument.

Prof.Yuntao Liu

(CARR)



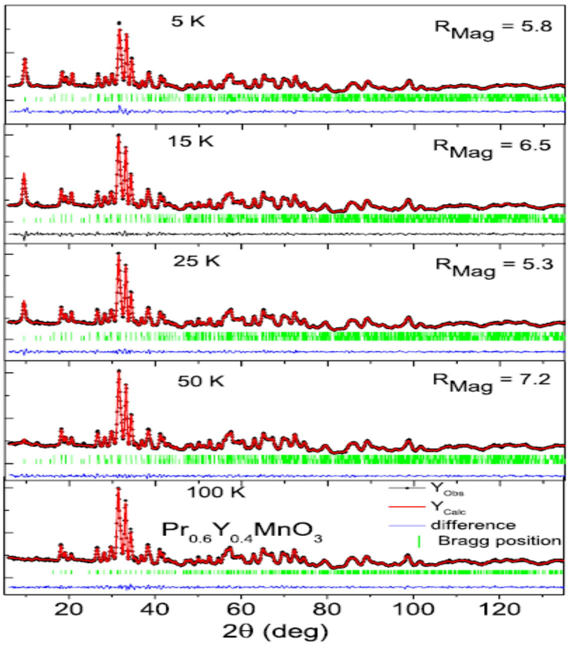
The National Facility for Neutron Beam Research (India) 2015-16

The National Facility for Neutron Beam Research (NFNBR) at Bhabha Atomic Research Centre, Mumbai is being utilized extensively in collaboration with users from various Indian universities and institutions. There are nearly 80 active projects running under various collaboration programs, many are being supported by UGC-DAE Consortium Scientific Research, Board of Research Nuclear Sciences (BRNS), and other agencies. Regular presentations on the progress of the projects are carried out. Most of the projects are on Small Angle Scattering, users are from all variety of branches, like physics, chemistry, biology, material science etc. A good number of projects are on structural aspects of multiferroic systems. A brief description of one such study is given below:

Investigation of structural and magnetic correlations in Y substituted PrMnO$_3$

Rare-earth (R) manganites (RMnO$_3$) and its derivatives ($R_{1-x}A_x$MnO$_3$, A = Sr^{2+}, Y^{3+}, *etc*.) have attracted increasing scientific interest due to their rich multiferroic properties. The multiferroic properties of these manganites have direct correlation with ionic radii of the rare-earth ions. For example, manganites with large ionic radii are, generally, A-type antiferromagnetic with nonferroelectric properties while those with smaller ionic radii possess a cycloidal magnetic as well as a ferroelectric order. The effect of substitution of R-site in rare-earth manganite, $PrMnO_3$ with isovalent nonmagnetic yttrium (Y) ion has been studied in order to investigate the ionic size effect on the structural and magnetic properties of $Pr_{1-x}Y_xMnO_3$ ($0 \leq x \leq 0.4$) compounds.

Though, the Jahn-Teller (JT) distortion (Δ_{JT}) increases with Y substitution (Fig.) due to large tilting of the Mn octahedron, all the studied samples, $Pr_{1-x}Y_xMnO_3$ ($0 \leq x \leq 0.4$) crystallize in the same orthorhombic space group, Pnma. The neutron diffraction patterns of $Pr_{1-x}Y_xMnO_3$ ($0 \leq x \leq 0.4$), recorded at temperatures 100 K and below (Fig.1), have additional peaks owing to the onset of A-type antiferromagnetic ordering. The magnetic moments are aligned ferromagnetically in the (a–c) plane and the neighboring planes are oriented antiparallel. The increasing JT distortion with Y substitution weakens the Mn-O-Mn superexchange interaction, which in-turn decreases the magnetic transition temperature by nearly 22 K (from 81 K to 59 K), as inferred by dc magnetization and ac susceptibility study (Fig. 2). The Y substitution up to $x = 0.4$ in $PrMnO_3$, though, results in increasing structural disorder and diminishing magnetic character, it is unable to change the magnetic structure (such as cycloidal magnetic order) in order to induce multiferrocity in the resultant compounds. The results have been published in J. Appl. Phys. 117, 093903 (2015).



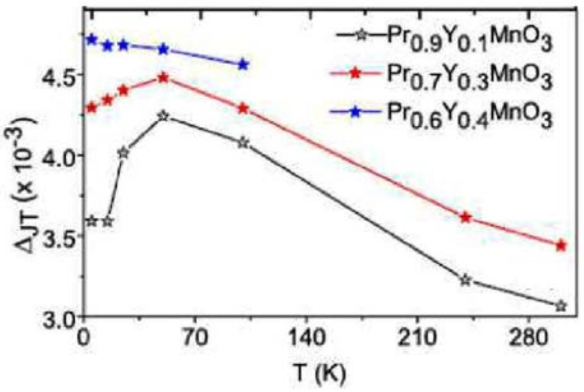


Fig. 1 Rietveld refined (Space group: Pnma) neutron diffraction patterns for $Pr_{0.6}Y_{0.4}MnO_3$, showing temperature

Fig. 2 Temperature variation of the Jahn-Teller distortion (Δ_{JT}) for the x = 0.1, 0.3, and 0.4 compositions.

Dr. S. M. Yusuf & Ramaprosad Mukhopadhyay

(Bhabha Atomic Research Centre)

The 7th workshop on NEUtron WAVElength- dependent imaging (NEUWAVE-7)

The 7th workshop on NEUtron WAVElength dependent imaging was held from May 31th to June 3rd 2015, in Mito, Japan. The workshop, organized by J-PARC Center with support by the Comprehensive Research Organization for Science and Society (CROSS), was attended by 55 experts from 10 different countries. The NEUWAVE workshop aims to discuss the latest advances in imaging techniques, applications and instrumentation that utilize neutron energy dependent interactions. This workshop series has a policy to promote intensive discussions. Therefore at least 30 minutes was allocated to each presentation.

Eight presentations were made to report recent progress at existing facilities and on-going projects. RADEN (J-PARC), the world's first pulsed-neutron imaging instrument, reported the commencement of the user program from April 2015. The IMAT project at ISIS (UK) also announced that the first neutron beam would be delivered within a few months after the workshop. The launch of these and other new imaging facilities is expected to promote the activities of neutron energy-dependent imaging users worldwide.

Another eight presentations on the Bragg-edge imaging technique were made. In particular, we had a session on cultural heritage with three contributions, in which Bragg-edge imaging was utilized to investigate position-dependent crystal information. Two and four presentations were held in sessions on resonance absorption and polarized neutron imaging techniques, respectively. Topics on interference effects, beam inhomogeneity and hardening effects, and detector and software development were also presented.

At the conclusion of the workshop, the participants agreed to have the next workshop in 2016 in Oxfordshire, UK.

Tetsuya Kai
(J-PARC)

Year 2015

Date	Events
Dec 3	10th AONSA Facility Directors’ Meeting (Tokai, Japan)
Dec 4	15th AONSA EC Meeting (Tokai, Japan)
Dec 2-4	7th AONSA Neutron School (Tokai, Japan)

Year 2016

Date	Events
May 30	11th AONSA Facility Directors’ Meeting (Mianyang, China)
May 31	16th AONSA EC Meeting (Mianyang, China)
Jul 10-14	American Conference on Neutron Scattering (Long Beach, CA, USA)
Nov 15-19	8th AONSA Neutron School (Mumbai, India)
Nov X	12th AONSA Facility Directors’ Meeting (Mumbai, India)
Nov X	17th AONSA EC Meeting (Mumbai, India)