Newsletter From AONSA

The Asia-Oceania Neutron Scattering Association

Volume 6, No. 2(December, 2014)

The 13th AONSA EC Meeting in Serpong, Indonesia

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President's message

By Prof. Wen-Hsien Li

(Department of Physics

National Central University

Jhongli, Taiwan)

Welcome Young Researchers

AONSA has taken another step forward to welcome Young Research Fellows from Korea, New Zealand and Taiwan to join long-term or semi-long-term research programs at ANSTO, HANORO and J-PARC. The wonderful neutron facilities in our regions now share their resources and experiences to the young generation. It is the facilities that provide opportunity for the human brains to generate creativity. Young brains are very valuable in bring in new ideas, in opening up new visions, and in working out new directions. AONSA will continue to drive the platform for young generation and facility to stand together for science talking. It is understood that this platform will setup in a yearly basis, with more and more facilities and opportunities to share with.

The opportunity in neutron science will not be possible without the great contributions from very many pathfinders. AONSA has once again identified the pioneer who bring our attention onto neutrons and open up our vision by using neutrons. Our congratulation goes to Professor John William White of Australian National University, whose visionary leadership in establishing AONSA and the facilities at OPAL merit the AONSA Prize 2015. We will be very happy to celebrate this honor in the upcoming 2nd regional conference, AOCNS-2015 in Sydney. I invite all of you to share this joy, to fill the neutron atmosphere, and to enjoy Sydney sunshine in the fourth week of July, 2015.

Many thanks go to our Indonesian colleagues who have once again organized a wonderful AONSA Neutron School in Serpong. AONSA Neutron School is a stage for young generation to go beyond geological and linguistic boundaries gather together to fill the wonder of neutrons, to talk science and to make international friends. AONSA welcomes, for the first time, students from Jordan in this 6th AONSA Neutron School, where we are very happy to welcome 55 students from 11 countries/regions to enjoy hand-on neutron experiences and 12 lectures, including two dedicated to celebrate the International Year of Crystallography. I am sure that the international communication will long last after the School. Although AONSA activities have taken another step forward to extend from being in the eastern Regions to the western sides, there are still many steps waiting for us to across.

Report on the 13th EC Meeting in Serpong

The 13th AONSA Executive Committee (EC) Meeting was held at the GA Siwabessy Reactor Building No. 31 of BATAN, Puspitek, Serpong, Indonesia on October 16 2014. The meeting was attended by 20 participants and was opened by AONSA President Wen-Hsien Li, who acknowledged the great efforts of our Indonesian colleagues - notably Edy Giri Rachman Putra - in organising the meeting and the AONSA Neutron School, the first session of which was devoted to the International Year of Crystallography.

The EC meeting was the occasion of the announcement that Prof John W. White has been awarded the 2015 AONSA Prize. All the attendees joined in congratulating Prof White, and President Li thanked the Selection Committee for their work. The announcement of three AONSA Young Research Fellows was also warmly welcomed, the recipients congratulated and the work of the Selection Committee acknowledged.

This was the last EC meeting that would be attended by Prof Masa Arai, whose service to AONSA over a long period has been invaluable to the development of the Association. President Li presented him with a gift in recognition of this and to mark the occasion. A gift was also presented to our Past President, Prof Yasuhiko Fujii, in recognition of his outstanding leadership of AONSA over recent years.

It was also announced at the EC meeting that the Indonesian neutron scattering community has received the funding support required to establish a formal society, which it is hoped will be in a position to join AONSA as a full member in the near future.

A broad range of topics were actively discussed in the morning, including the AONSA Prize, the 7th AONSA Neutron School in 2015 in Tokai, Japan, the 2nd AOCNS in 2015 in Australia, ICNS2017 in Korea, 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, along with a summary of facility reports presented by the Chair of the Facility Directors Meeting, Prof Shibayama.

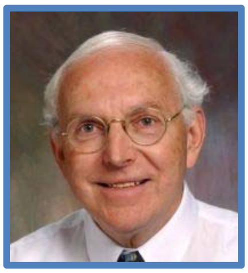
The 4th EC meeting will be held on the 19th of July 2015 in Manly, Sydney, Australia, as part of the 2nd AOCNS.

Chris Ling

Secretary of AONSA

The AONSA Prize 2015

The Selection Committee (SC) for the AONSA Prize 2015 received multiple nominees by the nomination deadline (June 30, 2014) and intensively reviewed them for a few months. All of the nominees made significant contributions to the field of neutron scattering in the Asia-Oceania region and are highly qualified, reflecting the quality of neutron science in the Asia-Oceania Region. Finally the SC nominated Professor John W. White as a recipient to the 13th AONSA Executive Committee Meeting held in Serpong, Indonesia on October 16, 2014 and the SC's nomination was officially approved. The recipient will be awarded a certificate, a medal and monetary prize (US$5,000) at the Prize Ceremony to be held during the 2nd AOCNS (July 19-23, 2015) in Manly/Sydney, Australia.



John William White

Research School of Chemistry, The Australian National University

Citation: "*For his seminal contributions to the use of neutrons in understanding molecules at interfaces, molecular crystals and self-assembly, for his visionary leadership in establishing the Asia-Oceania neutron scattering community and state-of-art neutron facilities including OPAL, and for his devoted mentoring of young scientists.*"

John W. White received his BSc from the University of Sydney in 1957, his MSc from Oxford University in 1959 and his PhD from the same institution in 1962. He was a University Lecturer and Fellow of St John's College from 1963-1985, during which time he began his leadership role in the neutron scattering community as Neutron Beam Coordinator at Harwell (1973-1974) Adjoint Director (1974-1977) and then Director (1981-1982) of the ILL. He returned to Australia in 1985 as Professor of Physical and Theoretical Chemistry at the Australian National University in 1985.

Over the course of 50 years in neutron scattering, through a combination of advances in experimentation and choice of paradigm examples, John's work has shown how the rich information in the neutron scattering law can be analysed to provide precise details of molecular structure and dynamics on the picosecond time scale, for a wide variety of chemical systems.

John became closely engaged with the Australian neutron scattering community immediately upon his return in 1985. He was largely responsible for introducing SANS and neutron reflectometry as experimental techniques to the Australian chemistry, biology and physics communities. John led the charge to build the AUSANS instrument at the HIFAR reactor source, and pushed strongly for the development of a reflectometer there. When the idea of a replacement for HIFAR - the present OPAL research reactor - was first raised, John emerged as its most politically influential and effective advocate. He represented the case to the Australian Government on behalf of the Australian Academy of Science and the National Commission on Crystallography at a series of enquiries through the 1990's (ASTEC Review, McKinnon Enquiry, Senate and the Senate Select Committee). The case for OPAL in its final form, as developed by ANSTO, was appraised by an Australian Academy of Science committee that he led, which formulated advice to the government on policy, siting, environmental impact and user access.

More recently, John has been a major driver in building an Asia-Oceania neutron scattering community to the mutual benefit of all its member countries. His direct involvement began on the Asian Crystallography Association Council in the early 1990's, shortly after its founding, and the International Advisory Panels for KEK and JAERI, which led to his appointment as Chair of the International Advisory Committee for the J-PARC Project in Tokai, Japan. John was the President of AONSA from 2010–2012.

Perhaps most importantly, through a combination of his exemplary science and his promotion of neutron techniques, John has been responsible for launching the careers of a large part of the current generation of Australian neutron scatterers. University departments, ANSTO and other neutron laboratories throughout the world are populated with his former students, postdocs and others whom he informally mentored over the last 30 years. The legacy of his leadership will be felt in Australia and throughout the Asia-Oceania region for many years to come.

Sung-Min Choi

Vice president of AONSA

Announcement of AONSA Young Research Fellows 2015

Dr. Jae-Suk Jeong | **Dr. Jacqueline Knobloch** | **Dr. Yi-Kang Lan**

The AONSA Young Research Fellowship program, which was established in early 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.

All applications were received by the submission deadline (August 31, 2014) and intensively reviewed by the Selection Committee (SC) for the AONSA Young Research Fellows (YRFs) 2015. The final selections were made by the SC in consultation with Directors of three hosting neutron Facilities and officially approved at the 13th AONSA Executive Committee Meeting on October 16, 2014 in Indonesia.

It is AONSA's great pleasure to announce that three very talented young scientists have been selected as the first group of AONSA YRFs who will visit major neutron Facilities in the Asia-Oceania region for collaborative research using neutrons in 2015. The AONSA YRFs' round-trip airfare will be supported by AONSA, and their local living expense during their Fellowship visits will be supported by their hosting Facilities.

<u>Hosting Facility: ANSTO (KOWARI)</u>

Dr. Jae-Suk Jeong
PhD in Materials Science and Engineering, POSTECH (2012)
Current Affiliation: Doosan Heavy Industry & Construction
Title of Research Proposal: Micro-Structural Studies on the Tensile Deformation Mechanism of Austenite Base Steels Using In-Situ Neutron Diffraction Experiments

<u>Hosting Facility: HANARO (40M SANS)</u>

Dr. Jacqueline Knobloch
PhD in Chemical Science, University of Auckland (2014)
Current Affiliation: Flinders University
Title of Research Proposal: Investigating Drug-Membrane Interactions using Neutron Scattering

<u>Hosting Facility: J-PARC (SOFIA)</u>

Dr. Yi-Kang Lan
PhD in Polymer Science and Engineering, National Tsing Hua University (2009)
Current Affiliation: National Tsing Hua University
Title of Research Proposal: Revealing the In-depth Phase Separation and Fullerene Migration within a DIO-modified PC71BM/PTB7/PEDOT:PSS Organic Photovoltaic Film via Neutron Reflectivity

Sung-Min Choi
Vice president of AONSA

The 6th AONSA Neutron School 2014 in Puspiptek Serpong, Indonesia

The 6th Asia-Oceania Neutron Scattering Association (AONSA) Neutron School was held at Graha Widya Bhakti and National Nuclear Energy Agency (BATAN) Indonesia Nuclear Complex, in Puspiptek Serpong, Indonesia from October 12 until 17, 2014. This school was attended by 55 postgraduate students and early-career researchers, more larger participant number than previous schools, came from Australia & New Zealand (4); China (2); India (8); Japan (4); Jordan (3); Malaysia (3); Korea (4); Taiwan (4); Thailand (3); Vietnam (2); and Indonesia (18). The first-five schools have been held previously at KAIST in Korea (2008), ANSTO in Australia (2009), BARC in India (2010), ANSTO in Australia (2011), CIAE and Peking University in China (2012).

Among the students, there were 21 foreign students from developing countries who have been supported for their travel and living expenses by the International Atomic Energy Agency, IAEA (11); the International Union of Crystallography, IUCr (7); and AONSA (3) for joining the school. Beside the students, we also had 12 lecturers representing from ANBUG/Australia (Prof. John White, Prof. Rob Robinson and Dr. Anna Sokolova); JSNS/Japan (Prof. Taku J. Sato and Dr. Makoto Hayashi); KNBUA/Korea (Prof. Sung-Min Choi, Prof. Jae-Ho Chung, Dr. Chang-Hee Lee), TWNSS/Taiwan (Prof. Hsiung Chou), SLRI/Thailand (Dr. Nuttawan Pramanpol) and BATAN/Indonesia (Dr. Iwan Sumirat and Dr. Agus Purwanto). Four foreign lecturers were supported by IAEA and IUCr for their travel expenses and others.

The school program consisted of fifteen inspiring and scientific talks that provided an introduction to the theory of neutron scattering and its applications to the materials sciences, biology and industry were delivered for two days. While neutron scattering beam time with hands-on experience, data analysis and student presentations were divided into three major groups on magnetic structure study of neutron diffraction, protein solution structure and micelles structure of small-angle scattering spectrometry and phonon measurement of inelastic neutron spectrometry.

As a special year of celebrating the International Year of Crystallography 2014 (IYCr2014) by UNESCO, the 6th AONSA Neutron School was formally declared by Prof. Wen-Hsien Li (the President of AONSA) as a part of celebrating IYCr2014 in Indonesia. Two special lectures on crystallography using X-ray and neutron (the history, the impact on sciences, the future challenging issues as well as state-of-the art of the instrumentation development) have been given by Prof. John White (ANU, Australia) and Prof. Takashi Kamiyama (KEK, Japan). This school is also part of the International Scientific Week on Advanced Materials Science 2014 organised by the Center for Science and Technology of Advanced Materials (PSTBM) – BATAN.

In addition to the formal program, an excursion was arranged to visit the Beautiful Indonesia Miniature Park (TMII), the National Monument (Monas) and the Old City of Jakarta. Overall, the School has helped those attending young scientists to build expertise and confidence in the application of neutron scattering techniques, include in extending the networking with X-ray synchrotron scientists in Thailand.

We would like to gratitude all lecturers and tutors for their fine efforts in stimulating the interests of the students; as well as IUCr, IAEA, AONSA, and BATAN for their financial assistance provided to attending students and lecturers.

Edy Giri Rachman Putra

National Nuclear Energy Agency

(BATAN) Indonesia

The Principal of the 6th AONSA Neutron School

8th Asia-Oceania Neutron Facility Directors Meeting,

Front; Facility directors, Back; observers.

The 8th Asia-Oceania Neutron Facility Directors Meeting (AONFDM) was held on the 15th, October, 2014, at G. A. Siwabessy Reactor Building No. 31, BATAN's Nuclear Technology Research Center, Puspiptek Serpong, Indonesia. The participants were Chang-Hee Lee (HANARO), Rob Robinson (OPAL), Masa Arai (J-PARC), Mitsuhiro Shibayama (JRR-3), Yuntao Liu (CARR/CIAE), and Dongfeng Chen (for Hesheng Chen, CSNS). In addition, a number of observers attended including those from AONSA; Wen-Hsien Li (President), Sung-Min Choi (Vice President), Chris Ling (Secretary), Hideki Seto (Public Relations Officer), and Yasuhiko Fujii (Former President), and from local or other facilities; Gunawan (BATAN), Sutiarso (BATAN), Edy GiriRachman Putra (BATAN), Somchai Tancharakorn (Synchrotron Light Research Institute, Thailand; SLRI), Sarawut Sujitjorn (SLRI), and Jason Gardner (NSRRC/ANSTO). The agenda was as follows: (1) Facility Report, (2) AONSA Visiting Fellows, (3) Next AONSA Neutron School, and (4) Secretary and next Chair.

(1) **Facility Report**: Lee reported that the organization of HANARO was changed since the new director of KAERI was appointed. Beam time allocation in 2013 was domestic 42%, internal 26%, foreign user 11%, maintenance 10%, and so on. 17 instruments will be operational in November 2014. Shibayama reported that JAEA was reorganized in April 2014 to increase the safety culture. The sector of Nuclear Science Research is in charge of Quantum Beam Science Center and the J-PARC. JAEA submitted an application to NRA on Sept. 26, 2014 for permission of restart. JRR-3 is expected restarted in the fall of 2015 at the earliest. Agreement on academic exchange between ANSTO and ISSP was concluded. Under the Agreement, Memorandum on Collaborative Access to Facilities between ANSTO and ISSP was concluded to secure that ANSTO will provide agreed facilities at the Bragg Institute for collaborative non-proprietary research. It became effective on 1 Oct. 2014 for 5 years or until JRR-3 restarts. Arai reported that J-PARC is planning to ramp up the power to more than 500kW from 300kW. User and office building (6000 m^2) is coming soon. OPAL reported that there were 394 unique users and 1349 users visited OPAL in 2013. 10 instruments are in the user program, 3 are commissioning, 1 is under construction. Chen reported that civil construction at CSNS almost completed and detailed design and prototypes of TMR and instruments have been completed and components fabrication started. Liu reported that the CARR reactor was operated in 20MW for 42 hours at the end of 2013. Now, 9

neutron instruments are ready, 5 neutron instruments are under construction, 4 instruments are planned. Sutiarsoreported that G.A. Siwabessy has 7 instruments (4 basic research, 3 industrial application). The number of neutron users from local universities, government R&D Institutions and Industries is 22 in 2014. Shibayama reported for Chaplotthat, the activity of BARC was reported on Neutron News, featuring "Neutrons in India" with correspondents report and 6 Scientific reviews. Dr. Tancharakor, Observer from Thailand, reported the activities of Synchrotron Light Research Institute (SLRI), Thailand.

(2) **AONSA Visiting Fellows:** The selected committee for AONSA Young Research Fellows 2015 reported the guidelines for AONSA YRF selection process and selection results.

(3) **Next AONSA Neutron School:** It was decided that The 8th AONSA Neutron School will be held at J-PARC, Tokai, Japan, in the first week of December, 2015.

(4) **Secretary and next Chair:** The Secretary of AONFDM in 2015 is assigned to Rob Robinson (ANSTO).

Mitsuhiro Shibayama

The University of Tokyo

International Year of Crystallography 2014 (IYCr2014) Activity in Indonesia

The International Year of Crystallography 2014 (IYCr2014) is a special event promoted by the United Nations (UNESCO, the United Nations Educational, Scientific and Cultural Organization) and the International Union of Crystallography (IUCr) to celebrate the centenary of the discovery of X-ray crystallography and to show up the global importance of crystallography in human life. The opening ceremony of the IYCr2014 was held in Paris on January, 20-21, 2014. Many activities have been organized in celebrating the IYCr2014 all over the world, including in Indonesia.

The first activity was a Seminar on Application of X-Ray Diffraction and Scattering in Biomolecular Study, organized by the Indonesian Society for Microbiology, branch Bandung. This event was held on April 3, 2014 at Institute Technology of Bandung (ITB) Campus in Bandung, and attended by hundred participants. Protein crystallography, a first lecture was delivered by Dr. Ihsanawati, Department of Chemistry (ITB). The fundamental of protein crystal, X-ray diffraction, data analysis and the impact on protein behavior were clearly explained. The second lecture, protein solution scattering by small-angle scattering was delivered by Dr. Edy Giri Rachman Putra (National Nuclear Energy Agency of Indonesia, BATAN). This complementary method of protein crystallography is emerging as a new method for protein structure study where the single crystal of protein is not available to be provided. At the end of the day, Dr. George Tang (Bruker) delivered a new development on X-ray instrumentation for protein structure study.

The IYCr2014 Open-Lab in Indonesia, supported by Bruker was taken place at Institute Technology of Bandung (ITB) Campus, Bandung from August 18 until 22, 2014. A bench-top single crystal X-ray diffractometer SMART X2S provided by Bruker has been demonstrated for hands-on exhibitions in research and teaching. Along with hands-on demonstration several lectures have been delivered by Prof. Effendy (State University of Malang, UM), Dr. Bambang Prijamboedi (ITB) and Dr. Nguyen Thanh-Ha (Bruker).

Finally, the celebration of the IYCr2014 in Indonesia was completed at the 6th AONSA Neutron School, held in Puspiptek Serpong, Indonesia from October 12 until 17, 2014. In the opening remark of the school, Prof. Wen-Hsien Li (the President of AONSA) declared that the school is a part of celebrating IYCr2014. Two special lectures on crystallography using X-ray and neutron (the history, the impact on sciences, the future challenging issues as well as state-of-the art of the instrumentation development) have been given by Prof. John White (ANU, Australia) and Prof. Takashi Kamiyama (KEK, Japan).

From those activities, it has been successfully notice in inspiring the young people (student, scientist, etc.) about education and research in crystallography and its links to other sciences, in illustrating the universality of sciences, and also in promoting the large synchrotron and neutron radiation facilities in Indonesia and region for problem-solving in materials characterization.

We would like to gratitude thank and appreciation to all colleagues who have organized such great events in Indonesia to celebrate the International Year of Crystallography 2014. Congratulation….

Edy Giri Rachman Putra
National Nuclear Energy Agency (BATAN) Indonesia

The lecturers and organizer in the Seminar on Application of X-Ray Diffraction and Scattering in Biomolecular Study, ITB, April 3, 2014.

Call for Application for the next AOCNS

The Call for Proposals to host the 3rd Asia Oceania Conference on Neutron Scattering, which should be held in 2019, is now open.
The host and location of the 3rd AOCNS in 2019 will be decided in the Executive Committee meeting which will be held during the 2nd AOCNS (July 19-23, 2015, Australia). Both paying regular member societies and non-paying observers of AONSA can submit their proposals to the Secretary of AONSA by email (chris.ling@sydney.edu.au) prior to the submission deadline of May 29, 2015. The official principles and procedures to decide the host and location of the AOCNS are outlined below.

Procedures to Decide the Host and Location of the Asia-Oceania Conference on Neutron Scattering (AOCNS)
(Established on October 5, 2010)

1. Basic Principles

a. The host and location of AOCNS will be circulated in the Asia-Oceania Region.
b. Under normal circumstance, the host and location of AOCNS will be decided 4 years ahead of time and will be announced in the AOCNS just before it.
c. The host and location of AOCNS will be decided in the AONSA EC meeting after reviewing the conference proposals submitted by neutron societies in the Region.
d. Both paying regular member societies and non-paying observers can submit proposals.

2. Procedure

a. The call for proposal should be announced one year ahead of the currently planned AOCNS.
b. Conference proposals should be submitted to Secretary of AONSA by the application deadline specified in the call for proposals. Under normal circumstance, the deadline is one month before the AONSA EC meeting. Only one proposal is allowed for each society.
c. The host and location of next AOCNS will be decided in the EC during AOCNS where candidates should present their proposals with enough information and the results should be announced at the end of the conference.

Chris Ling
Secretary of AONSA

Report from JSNS

The 33rd Regular Council Meeting was held on November 19th, 2014 to discuss and decide many issues including reports from the board of administration. The special committee for Next Generation Neutron Science has been launched to discuss the future direction and the roadmap of neutron science community, chaired by Professor Masaki Fujita (Tohoku University).
The 14th annual meeting of JSNS was held in Hokkaido Citizens Actives Center (Kaderu 2.7) in Sapporo, Hokkaido, on December 11th – 12th, 2014. Professor M. Furusaka (Hokkaido University) and Professor H. Onuma (Hokkaido University) were the chairmen of the meeting and the program committee, respectively. In the opening session, Mr. Kudo (Director of Office for Quantum Radiation Research Science and Technology Policy Bureau, MEXT) gave a speech with his expectation for neutron science following to the welcome addresses by the chairman (Prof. Furusaka). There were two invited talks by Professor Kagi (University of Tokyo) on “Water and Hydrogen in deep Earth and Planetary Interior High-pressure neutron Diffraction Measurements at PLANET beamline, J-PARC” and by Prof. Asakura (Hokkaido University) on “Hydrogens on Platinum Surface Analyzed by XAFS”, 5 JSNS Prize lectures, 44 contributed talks, and 82 posters. Two special sessions were organized to celebrate the International Year of Crystallography 2014 (IYCr2014), and two other special sessions open for public were held to discuss industrial applications of neutron. All participants enjoyed these oral and poster presentations on new and exciting results from J-PARC/MLF, JRR-3 and many other facilities and universities, and exchange of information. Poster awards were given to three young scientists. The banquet was held in KIRIN BEER-EN in the evening on the first day of the meeting.

The JSNS Scientific Prize 2014 was awarded to Professor Mitsuhiro Shibayama (University of Tokyo) for “Structure and Deformation Mechanism of Polymer Gels and Micelles Investigated by Neutron Scattering Techniques”. Professor Masahiro Hino won the JSNS Technical Prize for “Development of Neutron Reflectiive Optical Devices and Its Application“. The JSNS Young Researcher Prizes were given to three young scientists: Dr. Hiroshi Nakagawa (JAEA) for “Hydration and Dynamics of Biomolecules studied by Incoherent Neutron Scattering and Molecular Simulation”, Dr. Norifumi Yamada (KEK) for “Development of Horizontal Type Neutron Reflectometer (SOFIA) in J-PARC ” and Dr. Yusuke Nambu (Tohoku University) for “Approach to Iron-based Superconductivity through Neutron Scattering on Separate Dimensional Materials”.
On the day after the annual meeting the 4rd open public symposium on neutron science and applications to high school students and residence in Sapporo area was held at the Department of Engineering, Hokkaido University. About 100 people attended the symposium. Three lectures were given in the symposium. Dr. Suzuki from J-PARC gave an introduction of neutron science and its application using many interesting cartoons. Prof. Nagai in Hokkaido University talked about “Sea under the Ground” and Prof. Yamamoto in Tsukuba Univ. introduced recent developments on “Cancer Therapy by Neutron Radiation”. The audience really enjoyed the three talks on neutron science and applications.

T. Kanaya
President of JSNS
M. Sugiyama
General affair of JSNS

Group photo of participants in the 14th JSNS annual meeting

Report from KNBUA

The Korean Neutron Beam Users Association (KNBUA) currently holds 303 memberships that include 139 students. During the last five years, the size of the membership increased by approximately a dozen every year on average.

The KNBUA General Assembly

On May 9th 2014, the General Assembly was held among the members of the KNBUA. This annual gathering occurred in conjunction with the HANARO Symposium at the KAERI. Reported to and approved by the members were the settlement of 2013 account and the schedules for 2014 projects/expenditure. One of the most important events was the formation of new board members. Sung-Min Choi of KAIST was elected as the President with Kwanwoo Shin of Seogang University assisting as the Secretary. Kookheon Char of Seoul National University became the Auditor, and Doo-Yeol Ryoo of Yonsei University Sungkyun Park of Pusan National University the Editing Managers. Jae-Ho Chung of Korea University will be managing international relations, and Change Hee Lee of the KAERI represent the Hanaro. Seunghun Lee of University of Virginia at Charlottesville will cooperate as the Overseas Observer. Additionally, each of the four subgroups (elastic, low-Q, inelastic and industrial) has three coordinators. The term commences immediately and will last until April 2016.

The board members will hold regular steering committee meetings four times a year. The first meeting of the new board was held on September 26th in Daejeon. Discussions were exchanged on broad subjects including the ICNS preparation, workshops to promote neutron science in Korea, upcoming AONSA activities, plans for supporting domestic conferences and neutron schools, and endorsing the AONSA Young Research Fellowship applications.

Steering committee meeting on Sep. 26th

Other Activities

The HANARO Symposium was held in May 9th 2014 at the KAERI, Daejeon. This annual meeting for users of the HANARO research reactor was organized by the KAERI and supported by the KNBUA. The symposium covered five categories comprising neutron beam applications, neutron radiography, nuclear fuel & materials irradiation, radioisotope, and research reactor in general. In total 328 participants showed up for the day and contributed 115 talks and posters.

During the KNBUA General Assembly that occurred in the evening of the symposium, prizes were awarded to students for outstanding research papers published by using the HANARO facilities. The top prize was awarded to Soo Yeon Lim of KAIST for her research in battery materials. She published the results from the High Resolution Powder Diffractometer in PNAS 111, 599 (2014). The second places were awarded to Yonghoon Lee of Yonsei University [18m SANS, Macromolecules 46, 4454 (2013)] and Hyungsub Kim of Seoul National University [High Resolution Powder Diffractometer, Chem. Mater. 25, 3614 (2013)].

During the summer, there were several training courses designed for graduate and postgraduate students. The 2014 Cold Neutron Summer School was held on July 23rd – 25th at the KAERI. The hands-on techniques for neutron small angle scattering and reflectivity were instructed to 41 participants. The training courses for the structure refinement methods were offered twice, July 15th – 18th and August 26th – 28th, as part of the Hanaro user training. In this summer, the courses were focused on using the FullProf Suite to perform magnetic structure refinements.

The HANARO Symposium 2014

Jae-Ho Chung
Korea University

Report from TWNSS

Armed with enthusiastic sprit and hope for change, TWNSS has taken a big step in organization reforming and developing new collaborations for the later part of this year. Our ongoing effort in expanding neutron research interest group has produced significant progress so far. Our members' donation has reached a new high. This is encouraging and gives us thrust to push neutron researches in Taiwan to an even higher level.

TWNSS Annual Meeting and Workshop Held

The 2014 TWNSS annual meeting and workshop were successfully held in National Sun-yat University (Kaohsiung, Taiwan) from October 9th to 12th. There were 122 participants. The workshop for new comers was divided into two parallel sessions: small angle techniques and powder diffractions. The first day program provided platform for potential industrial neutron users and current academic users to connect. The main event in the annual meeting was election of the new delegates of the board members in TWNSS (vide infra). Since this year, 2014, is the international crystallographic year (announced by IUCr), we opened a special session dedicated to its celebration with Professor Tamás Ungár (Eötvös University Budapest in Hungary) as keynote speaker. A short review of the crystallographic advancement took audience back to the old days of crystallography.

Fig. 1. Scenes from 2014 TWNSS annual meeting, Kaohsiung, Taiwan: (top)--TWNSS president H. Chou (right) and professor H. S. Hsu (left) in Poster session; (down)--lecturer professor C. C. Yang (right) and students in short course session.

New Delegates of Board Members Elected

Election on board members held every two years has always produced groups of representatives to power the TWNSS activities. In the TWNSS annual meeting held in October, fifteen executive committee members and three supervising committee members were elected. About one third representatives are newly faces and two thirds are existing committee members. I was reelected as president for another two-year term. And closer ties with different special interest groups in Taiwan and promoting neutron research projects with industrial sectors will be the aim during this term.

Industrial Connection Established with High Hope

Most of our current neutron research proposals were academic but we see a lot potential applications in industry. It is always our hope to include industrial sectors in using neutron facilities to solve their problems. During the first day in our 2014 annual meeting, two parallel sessions were held to open the dialogue between industrial and academic groups. One session focus on the residual stress studies on metallic materials and the other session concentrated on the various material analyses on lithium batteries. At least two proposals were formulated right after the meeting. People on both sides, industrial and academic, were all excited about future collaboration in the near future.

SIKA Starts Test Runs

The Taiwan funded cold neutron triple-axis spectrometers (SIKA) has successfully completed in-beam commissioning polarized neutrons on November 24th in ANSTO, Australia. It is the 6th instrument at OPAL reactor that past the final requirement of neutron tests supported by the Polarized 3He project. Still a lot work has to be done before SIKA open to accept project proposals. But after full polarization analysis and a few months' test runs, it shall be ready for the grand opening for service. Full polarization analysis on SIKA is expected in early 2015. Let's cross our fingers and hope for the best!

Hsiung Chou
President, TWNSS

Report from CNSS

The Second Chinese Conference on Neutron Scattering

The Second Chinese Conference on Neutron Scattering was held in Mianyang, Sichuan Province, on November 5-7, 2014. This conference was jointly organized by CNSS, China Academy of Engineering Physics (CAEP), China Spallation Neutron Source (CSNS) and China Institute of Atomic Energy (CIAE), and hosted by CAEP. More than 200 participants from over 50 universities and institutes participated in it. The latest progress of CSNS, Neutron Scattering Platform at CARR (China Advanced Research Reactor), Neutron Scattering Platform at CMRR (China Mianyang Research Reactor) and CPHS in Tsinghua University was reported. The conference includes five themes: diffraction, inelastic scattering, large-scale matter, stress and texture diffraction, instrumentation and other neutron scattering related techniques. Scientists shared their recent work and experience each other on the conference. On the last day, the attendees visited Neutron Scattering Platform at CMRR (China Mianyang Research Reactor). This conference promotes the development and application of the neutron scattering techniques in China. The conference of next year will be held in Beijing hosted by CIAE.

Dongfeng Chen

China Institute of Atomic Energy

and Treasurer of AONSA

Report from NSSI

New managing committee of the Neutron Scattering Society of India (NSSI) is elected for three year term until June 2017.

The newly elected members are:

1. Prof. R. Mukhopadhyay, BARC, Mumbai,
   President
2. Prof. K. G. Suresh, IIT, Bombay,
   Vice President (Head Quarter)
3. Prof. J.A.E. Desa, Goa University, Goa,
   Vice President
4. Prof. S. M. Yusuf, BARC, Mumbai,
   General Secretary
5. Dr. Ranjan Mittal, BARC, Mumbai,
   Treasurer
6. Prof. T. Pradeep, IITMadras, Chennai
   Member
7. Prof. Dhananjai Pandey, IITBHU, Varanasi,
   Member
8. Prof S.L. Chaplot, BARC, Mumbai
   Immediate past-President

The new committee has taken over the charge on June 25 2014.

Membership of Neutron Scattering Society of India has reached 160 nos.

NSSI is co-organising the 5th Conference on Neutron Scattering at Homi Bhabha Centre for Science Education, Mumbai during February 2 - 4, 2015 along with a Pre-Conference Neutron School during January 27-31, 2015 at Bhabha Atomic Research Centre, Mumbai. The conference would focus on development of facilities, and applications to emerging areas of new materials and novel scientific phenomena. The Pre-Conference Neutron School is aimed to enhance awareness, and provide training to the University researchers in the field of neutron scattering. The pre-conference Neutron School includes hands-on experiments using the facilities at the Bhabha Atomic Research Centre, Mumbai. Overwhelming response is received for the school as well as the conference. This will be the XVII of the series organized jointly with UGC-DAE CSR.

Ramaprosad Mukhopadhyay

BARC, Mumbai India

Photo taken during the XVI school on Neutrons as Probes of Condensed Matter (NPCM) from February 4 – 8,2014 at BARC

Report from NFNBR

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. At present, nearly 80 projects are in progress.

Presently, a time of flight spectrometer is being commissioned. It consists of a focusing monochromator (doubly curved Cu (111)), a Fermi chopper, and an array of position sensitive detectors. As per the McSTAS simulation study, an energy resolution, ($\Delta E/E_i$) ~ 7% is expected for a sample to detector flight path of 2 m with chopper speed of 30000 rpm. The flight chamber will be filled with argon gas. The detectors (50 in number, 40 mm diameter, and 1m long) have been fabricated already. Currently, an optimization, and a calibration of the instrument is in progress.

The Triple Axis Spectrometer (TAS) at Dhruva reactor (NFNBR) is being upgraded with a double focusing monochromator. This would enhance the throughput of the TAS significantly.

Recently, a newly procured cryomagnet (1.4K ≤ T ≤ 300K, maximum field 7 Tesla) is installed on the Neutron Powder diffractometer-II, at Dhruva and it is being used to record diffraction data in the temperature-magnetic field plane from various interesting functional materials.

Neutron News, Vol. 25 (1) (2014), featuring "Neutrons in India" with correspondents report, and 6 scientific reviews has been published recently.

Ramaprosad Mukhopadhyay

Bhabha Atomic Research Centre

Report from J-PARC

1. User operation at MLF of J-PARC

Operation of pulsed spallation neutron source was resumed on 11th of February, 2014. The user program for the 2013B period was started on 17th of February with the 120 kW beam. The beam power was increased up to 220 kW on the 19th of February and then finally recovered to 300 kW on 26th of February and it was ended on 7th of April. User program for 2014A was started on 21st of April. It will be continued till December after four months break in summer (June 25 ~ November 3).

2. Improvement and maintenance of the neutron source

The mercury target has run steadily with the 300 kW proton beam for the 2014A period from the 14th of April to the 24th of June during which the gas micro-bubble injection successfully continued to mitigate the pressure waves generated in mercury. Other components such as the cryogenic hydrogen moderators and water cooling systems have also worked without any trouble. As a result, a 59-day neutron production was completed for the 2014A period as of the 24th of June, and 6.5 days were cancelled in April due to a trouble occurring at the 3-GeV RCS.

Fabrication of an advanced target vessel (figure 1), which has a double-walled structure with a narrow channel width of 2 mm at the proton beam injection portion, had been completed since it began in the summer of 2013.

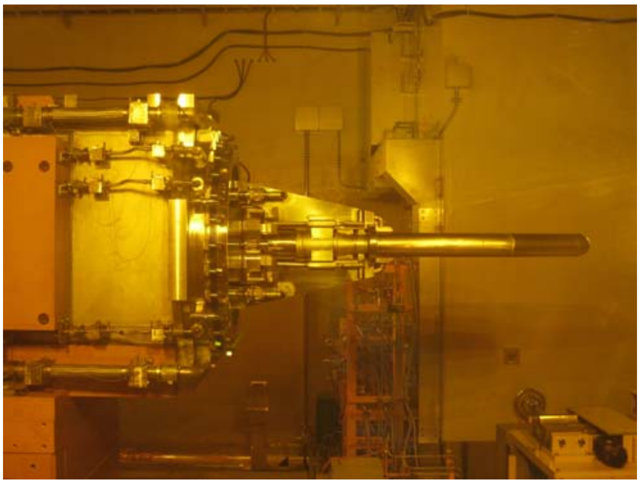


Figure 1 Newly developed target vessel (target vessel No. 5.)

3. Construction of three new neutron instruments

During the period of shutdown after the accident in the Hadron Experimental Facility, the construction of three new instruments was started: BL06 (Vin Rose, Spin Echo Spectrometers), BL22 (RADEN, Pulsed Neutron Imaging Instrument) and BL23 (POLANO, Polarized Neutron Spectrometer). Beam inspection on radiation shielding of three instruments was conducted by Nuclear Safety Technology Center on 22nd of April and passed without any serious problems. Very recently, on 7th of November, the construction of BL22 was successfully completed and the first neutron was accepted figure 2).

Figure 2 BL22 construction group (7th of November, 2014).

4. Proposal rounds for 2014A, 2014B and 2015A periods

The general proposal for 2014A was called for 17 instruments, and 283 neutron proposals were submitted. Those proposals were reviewed by the Neutron Science Proposal Review Committee (NSPRC), and finally 155 proposals were approved by the MLF advisory board; in addition, 43 proposals were reserved.

The general proposal for 2014B was called for 17 instruments. Call for proposal was closed in the middle of June and 289 neutron proposals were submitted. We have recorded the highest number of proposals. Those proposals were sent to NSPRC. Finally 161 proposals were approved by the MLF advisory board, in addition 37 proposals were reserved. The board accepted the beam schedule for 2014B extended till April, 2015.

Very recently, we called the general proposals for 2015A. Call for proposal was closed at the beginning of November, 2014. 332 neutron proposals were submitted.

5. Scientific Highlights

1). Overall electronic excitations of a high-temperature copper oxide superconductor

The complementary application of synchrotron radiation and pulsed neutrons has revealed for the first time a full picture of the electronic excitations in electron-doped copper oxide superconductors (figure 3).

This work was recently published in Nature Communications. In this work, inelastic X-ray and neutron scattering were used to elucidate the spin and charge excitations in electron-doped copper oxide superconductors. The results combined to give a complete picture of the electronic excitations that are thought to be critical in understanding superconductivity, and proved that electrons acquire a highly itinerant character in the doped metallic state.

The neutron inelastic scattering experiments were performed at MLF of J-PARC using the 4SEASONS spectrometer (BL01) and with the support of beamline staff from J-PARC and CROSS-Tokai. (Press release on April 26)

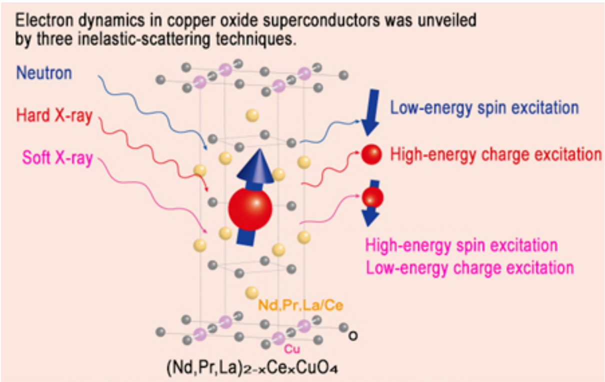
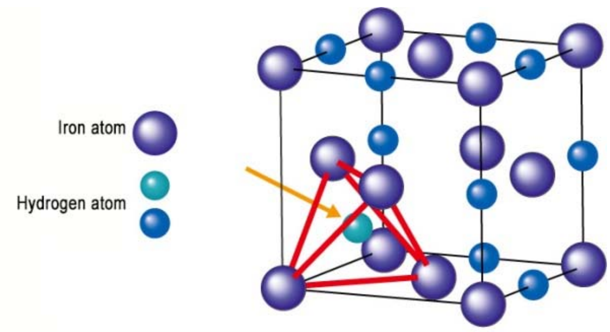


Figure 3 Schematic figure of the research. In the inelastic scattering experiment, soft and hard X-rays and neutrons were irradiated to a sample and then scattered signals were detected. Electronic excitations were studied by the energy difference between incident and scattered beams.

2). Neutron diffraction used to determine the position and amount of hydrogen in iron under high temperature and pressure

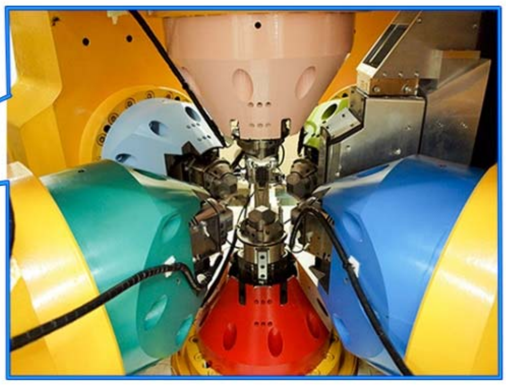
Under high temperature and pressure, hydrogen in iron is present not only inside octahedral sites, which was indicated by established theory, but also inside tetrahedral sites of cube metal lattice. This fact was elucidated using the PLANET, High Pressure Neutron Diffractometer, at MLF. This discovery is expected to advance research on iron and hydrogen, such as improving the quality and strength of iron and steel materials, and clarifying the conditions inside the earth's iron core (figure 4).

These results were achieved through joint research by the Quantum Beam Science Center and the J-PARC Center of Japan Atomic Energy Agency (JAEA), the Institute for Materials Research of Tohoku University, and other institutions, and were published online in the English science journal Nature Communications on September 26.
http://www.nature.com/ncomms/2014/140926/ncomms6063/full/ncomms6063.html



Positions of hydrogen atoms in face-centered cubic structure of iron atoms
A hydrogen atom exists inside the tetrahedral structure of iron lattice, which is indicated by red lines.

High-pressure generator, ATSUHIME



6-axis multi-anvil press

Masatoshi Arai
Takashi Ohhara
J-PARC

Figure 4 Schematic figure of the research.

Report from CARR

The neutron Scattering Platform at CARR achieved exciting experimental results from the nine instruments of the phase Ⅰ at the end of 2013. All the instruments around the reactor were optimized and got their diffraction patterns, even phonon dispersion curves (Figure 1).

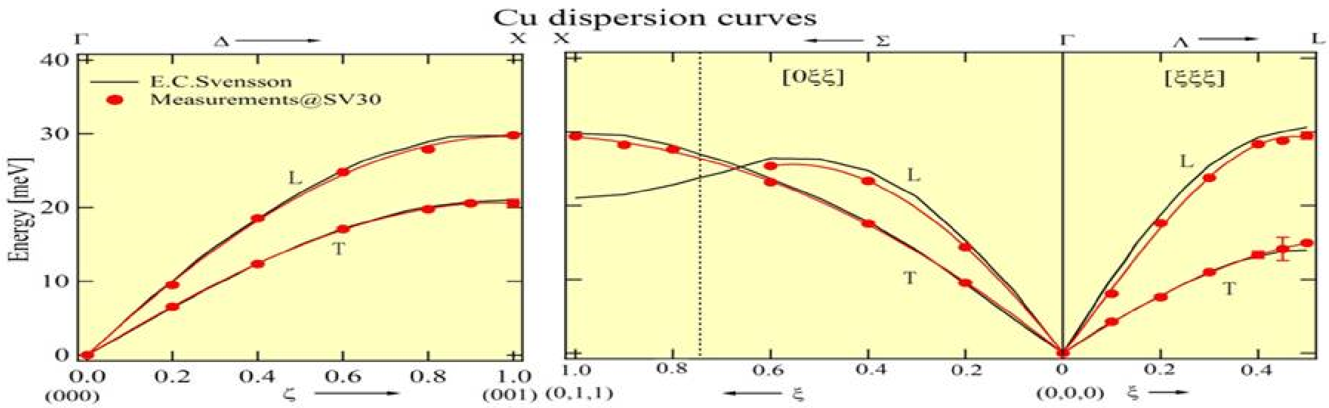


Figure 1 Part of Cu phonon dispersion curves

According to the adjustment results and the users' requirements, our scientists and engineers made much effort to optimize the performance of instruments. For examples, texture diffractometer has been greatly improved by detector upgrading, new data processing software (Figure 2), neutron shielding transformation and so on in 2014.

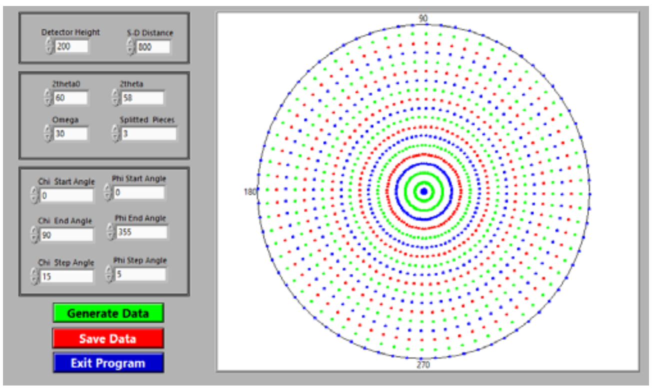


Figure 2 Software for the texture diffractometer at CARR

Moreover, the design and construction of the instruments on phase Ⅱ which includes Thermal Neutron Imaging (TNI), Cold Neutron Imaging (CNI), Multi Axis Crystal Spectrometer (MACS), Cold Triple Axis Spectrometer (CTAS) and Engineering Neutron Diffractometer (END) are in progress. In addition, the supplementary facilities and materials laboratories at CARR have been established.

Dongfeng Chen

China Institute of Atomic Energy

and Treasurer of AONSA

Report on the 2014 AINSE Winter School

The 2014 Winter School was a huge success with almost full attendance from every AINSE member institution. AINSE Post Graduate award holders Lydia Mackenzie (AINSE John Ferris Memorial Scholar from the University of Queensland) and Josie Auckett (the University of Sydney) assisted at the school along with AINSE Research Fellow Alison Blyth (Curtin University of Technology).
At the end of each School the students are fortunate to spend 2 hours with Dr Adi Paterson the Chief Executive Officer of ANSTO to ask questions about life as the CEO of Australia's only nuclear reactor. Dr Paterson is pictured below in the group photograph taken on the last day.

Michelle Durant

AINSE

The 2014 AINSE Winter School at ANSTO, Australia

Neutron Education in Taiwan

As the construction phase of the Taiwanese triple axis spectrometer (SIKA) comes to an end and commissioning begins, the National Synchrotron Radiation Research Center (NSRRC) has organized and supported a series of educational events to promote neutron techniques and applications to the community. Every year several students and young scientists are sent to international neutron schools like Hercules in France, AONSA Neutron School, and ANSTO-AINSE Neutron School. Experts, such as Dr. Takashi Ino (J-PARC) and Dr. Anna Maria Ziara-Paradowska (ANSTO), are invited to speak to different interested groups from time to time. Workshops aiming at certain areas of neutron research have been planned and will continue to bring in new perspectives on science.

In October 2013, a very general workshop was held at the NSRRC. Three ANSTO instrument scientists, Drs. Kirrily Rule, Richard Mole, and Anton Le Brun, and Prof. Mu-Ping Nieh (University of Connecticut) came and shared their use of neutrons in the fields of magnetism and biomaterials. Parallel sessions of hard condensed matter and soft matter were arranged for participants who were interested in more specific topics. Our users and potential users were given the opportunities to interact and build up possible collaborations with experts so that they could turn their research ideas into solid proposals.

In September 2014, the NSRRC held another workshop focusing on using neutrons as a probe in soft matter research. The two-day meeting was attended by 19 professors and an equal number of students. Dr. Andrew Whitten (ANSTO) described the instruments at ANSTO, in particular the small angle neutron scattering (SANS) machines. Professors Toshiji Kanaya (Kyoto University), Hideki Seto (KEK) and Mitsuhiro Shibayama (University of Tokyo) graciously gave up their time to highlight the advantages of neutron scattering in soft matter research, and Dr. Michihiro Nagao (Indiana Uni./NIST) told us of his research in the dynamics within complex systems. One of our users, Prof. Hsi-Mei Lai (National Taiwan University), who also attended the previous workshop, was there to share with the audience her research and experiences with neutrons. With overviews of techniques like quasi-elastic neutron scattering, rheo-SANS, neutron spin echo and excellent science-based talks, the participants were treated to a great vision of the future.

This meeting compliments the biannual Taiwan-Japan Meeting on Neutron and X-ray Scattering and the efforts of the Taiwan Neutron Science Society (TWNSS). Many new friends were made and old friends were reunited. Two or three similar workshops will be organized in Taiwan each year including one in December on inelastic neutron scattering in Tainan when colleagues from South Korea, China, Japan, Canada and the United Kingdom will take part in a three-day meeting to promote the use of SIKA. Cultivation and education is a long journey. We recognise that we cannot do it without government's support and friends' participation. To this end, in July 2015 we will host the Asia-Pacific edition of HERCULES, the neutron and synchrotron X-ray school from Grenoble. The registration has just opened and we hope to see lots of you in Taiwan. With all the efforts made for neutron education and promotion, we look forward to a growing community and more successful international collaborations.

Participants at work and at dinner during the Soft Matter and Neutron Scattering

Stella Su

J S Gardner

(NSRRC, Taiwan)

Indonesian Young Scientists in ASEAN Synchrotron Science Camp – SLRI Thailand

The 3rd ASEAN Synchrotron Science Camp is a camp that was organised by the Synchrotron Light Research Institute (SLRI), Thailand. This program invited all young scientists (students) in South-East Asian countries. The Science Camp is aimed to continue enlarging cooperation on synchrotron technology among ASEAN countries, to encourage students to realize in the role of science and technology, especially synchrotron technology, to strengthen synchrotron user group and to increase number of ASEAN researchers and scientists in synchrotron technology.

After passing the administration selection, there were 14 young scientists (undergraduate, postgraduate and PhD students) from Indonesia joined the 3rd ASEAN Science Camp at SLRI in Nakhon Ratchasima from May 19 until 23, 2014. They were listed as follow

Polytechnic Institute of Nuclear Technology, Yogyakarta

1. Fatmawati Nurcahyani (Nuclear Chemistry)
2. Tri Wahyu Santoso (Nuclear Chemistry)
3. Mia Lestari Ayuningtyas (Nuclear Chemistry)
4. Risha Diah R. (Nuclear Chemistry)

Institute Technology of Bandung (ITB)

5. Fredy Giovani (Physics)
6. Nelson Gaspersz (Chemistry)
7. Viky Vidayanti (Biology)
8. Pintaka (Chemistry)

Bogor Agricultural University (IPB)

9. Mohamad Arief (Physics)
10. Dini Novialisa (Physics)
11. Kania Nur Sawitri (Physics)

Padjadjaran University, Bandung (Unpad)

12. Sani Widyastuti Pratiwi (Chemistry)
13. Inggis Pinarti (Chemistry)

Institute Technology of Sepuluh November Surabaya (ITS)

14. Fandy Angga Prasetya (Physics)

They were among of hundred participants from other ASEAN countries to enjoy the camp. Knowledge about synchrotron facilities and technology, as well as its benefits in the field of analysis has been exposed to the students. Some of lectures in the camp were delivered in protein crystallography, XRF, SAXS, etc. Beside the lectures and theory, practical use on material characterization was also performed directly using existing facilities in SLRI. The students were divided into several subgroups where each subgroup deeply learned into the material that has been selected. In addition to the science of analysis using a synchrotron method an excursion to Phimai Historical Park was arranged to know the city's history of Nakhon Ratchasima. Many new friends were made it and few of them were also joined the recent activity, the 6th AONSA Neutron School in Serpong, Indonesia.

By bringing the spirit as well as friendships and networking in the ASEAN countries it will revive and enhance X-ray and neutron users in the region. Now, we all motivated for building up strong user groups of neutron and X-ray through the Asia-Oceania Neutron Scattering Association (AONSA) and Asia-Oceania Forum for Synchrotron Radiation Research (AOFSRR).

Edy Giri Rachman Putra
National Nuclear Energy Agency (BATAN)
Indonesia
Kania Nur Sawitri (Physics)
Fatmawati Nurcahyani
Polytechnic Institute of Nuclear Technology,
Indonesia

NOBUGS2014

Place: Kobayashi hall, High Energy Accelerator Research Organization (KEK), Tsukuba, Japan
Date: 2014 September 24th ~ 2014 September 26th

The NOBUGS (New Opportunities for Better User Group Software) conference [1] was started in 1996 and aims to foster and activate collaboration between scientists and software professionals working for X-ray, neutron and muon sources around the world. Key themes of the conference are following: Best practice in software engineering, Web/mobile technology, High speed/real time data analysis/visualization/3D graphics, Data avalanche/managing data, Database integration, Automatic calibration and data reduction. In 2014, 10th of NOBUGS conference [2] was hosted by J-PARC center as a satellite meeting of ICANS-XXI and co-hosted by Institute of Materials Structure Science of KEK and the Comprehensive Research Organization for Science and Society (CROSS) Tokai. Three companies, such as Bee Beans Technology (Japan), Quatre-i Science (Japan) and Tesella (UK), also supported the conference. Sixty-eight participants (32 from Japan and 36 from abroad) attended the conference. As keynote talks, Prof. S. Tsuneyuki of Tokyo University presented "Atomistic Modeling of Materials Based on First-Principles Calculation" and Prof. Hara of KEK presented "The Computing and Software in Belle II, the Big Science". Dr. R. Tanaka of Spring-8 and Dr. M. Hagen of ESS presented invited talks. Through 27 oral presentations and 29 poster presentations, information of recent activities and collaborations were exchanged. The best Poster award was given to Dr. N. Yano of Ibaraki University and 2nd poster awards were given to Dr. M. Clark of ISIS and Dr. T. Hanashima of CROSS-Tokai. Presentations have been uploaded at the web page [3]. Next NOBUGS will be hosted by ESS in 2016.

[1] http://www.nobugsconference.org/Main_Page
[2] http://j-parc.jp/researcher/MatLife/en/meetings/nobugs2014/index.html
[3] http://nobugs2014.kek.jp

Toshiya Otomo
High Energy Accelerator Research Organization (KEK),J-PARC

The 5th and 6th MLF Symposiums

The 5th MLF Symposium was held at the International Congress Center, Epochal Tsukuba, on 18th and 19th of March, 2014, under the 2nd IMSS Science Festa with joint of Photon Factory Symposium by the hosts of Institute of Material Structure Science (IMSS) in KEK, J-PARC Center, CROSS Tokai, Photon Factory-User Association and J-PARC/MLF User Society. The number of participants was totally around 400. On the first day, there were several common programs of Science Festa such as plenary lectures and invited talks focusing onto three topics of "material science interweaving hydrogen and spin", "contribution to sustainable society" and "life science with quantum beam", the poster session managed together by MLF and PF where enthusiastic discussions were developed on as many as 300 presentations and the banquet. On the second day, MLF Symposium was held with 150 participants. In the morning session, a facility report, invited talks and conversation between the facility and users were given. In the afternoon, there were three parallel sessions including MSL workshop focusing onto muon science.

The 6th MLF Symposium is scheduled to be held at the same place, Epochal Tsukuba, on 17th and

18th of March, 2015, again under the 3rd IMSS Science Festa. Several parallel sessions focusing on particular scientific fields will give us opportunities to discuss with each other beyond each society of neutron, synchrotron and muon communities. Poster session will be also planned in a program of Science Festa common between MLF and PF. On the other hand of such Science Festa programs, MLF symposium will be held in single session on the second day, where science and technology unique to MLF will be discussed. Although almost parts of the meeting will be given in Japanese language, English presentations are also welcome. The official website will be open soon, early in December.

Yukinobu Kawakita
J-PARC


Photographs of the 5th MLF Symposium.

The 2nd International Symposium on Science at J-PARC

The J-PARC Center held “The 2nd International Symposium on Science at J-PARC” at the Tsukuba International Congress Center, starting with a public lecture entitled "Unveiling the Mysteries of the Universe" on July 12, and continuing for five days until the 16th.

The first speaker at the public lecture was Dr. Ulrich Walter, a professor at the Technical University of Munich who became the first German astronaut after obtaining his doctorate for neutron research. He gave a talk entitled "Traveling Space with Einstein." Next was a lecture "Unlocking Secrets of the Universe by Accelerated Protons!" by Dr. Masaru Tada (Assistant Professor, KEK) . Dr. Tada is engaged in research on neutrino particles at J-PARC, and he talked about the attractions of neutrino research. Both Japanese and non-Japanese lecture attendance was 212 persons in total. The main symposium, which began on the 13th, covered five fields: accelerators, particle and nuclear physics, materials and life science, nuclear transmutation, and safety and advanced technology for intensity frontier. There were a total of 137 oral presentations, including 13 keynote lectures, and 245 poster presentations. Participants had lively discussions of topics such as previous research results at J-PARC, state-of-the-art research results in related fields, and directions for technology, safety and science for 1 MW operation in the future. Including the Satellite Workshop on the 16th, there were approximately 550 participants from 20 countries (of which about 65 were researchers and students belonging to overseas research institutions). At the J-PARC Center, we plan to hold this symposium periodically in the future.

The Korea-Japan meeting on neutron science

The Korea-Japan meeting on neutron science is a joint workshop between Korea and Japan to exchange information and opinion on scientific investigations by using neutrons and neutron related instrumentation and device developments. The main purpose of the meeting is to promote collaboration between two countries in neutron sciences. The first Korea-Japan meeting on neutron science was held in 2000 in Japan, and since then we have had already 13 meetings bilaterally. The last meeting (14th) was held in Buyeo, Korea in the period of February 16-20, 2014. At that time, there were a total of 42 oral and poster presentations, and 80 participants (22 from Japan, 56 from South Korea, 1 from the US, and 1 from the UK).

The 14th Korea-Japan meeting on neutron science will be held in Tokai, Japan in January 7-9, 2014 hosted by J-PARC Center. In the coming meeting, the main theme is "Korea-Japan Collaboration." Reports on recent scientific topics in neutron researches, status reports of facilities, activities on neutron instrumentations and related hardware/software development works will be presented. Also, current status and future prospect in collaborations between both countries will be shown. Tours to J-PARC and J-RR3 sites and other social events are also planned. Thorough building upon the success of this joint workshop, new developments and collaborations between Korea and Japan will be expected.

Detail of the meeting will be shown on the web site, which will be ready soon.

Kenji Nakajima
J-PARC

ICANS XXI: 21st International Collaboration on Advanced Neutron Sources (Sep. 29-Oct. 3, Mito, Japan)

The 21st International Collaboration on Advanced Neutron Sources (ICANS) meeting took place at Mito, Japan (Sep. 29-Oct. 3). It was organized and hosted by Japan Proton Accelerator Complex (J-PARC), High Energy Accelerator Research Organization (KEK) and Comprehensive

Research Organization for Science and Society (CROSS). The venue for the meeting was Mito city, which is located 30 km away from J-PARC. In Mito city, one of the three top Tokugawa-related families lived for a long period of time during Edo era from 17th to 19th century, when the Tokugawa shogunate ruled the country. There is also Kairakuen Park by Senba Lake, which is one of the three most famous parks of Japan.

ICANS is a network for scientists who are involved in developing pulsed neutron sources and accelerator based spallation neutron sources. Since 1st ICANS meetings was held in 1977 at Argonne National Laboratory in the day of dawn of spallation neutron technique, ICANS has been continuously held already 20 times somewhere in the world. There were 203 participants from 16 countries contributing 135 oral (18 Plenary, 43 Invited and 74 Oral) and 79 for a good harvest since 1667 and lasted for about 300 years. The drum sound so fascinated us that we could not put it into words.

On Friday afternoon, which was the last day of the meeting, J-PARC site tour was held. More than 10 neutron instruments including chopper spectrometers, powder/single-crystal diffractometers,

poster presentations. Twelve topics were discussed, such as futuristic idea of neutron source, rapid progress in facilities, integration issues in target-moderator-development, etc. The meeting had

a two-layered structure, one is plenary session and the other is workshop. These two were complementary and tightly cooperate with each other. In the meeting, “workshop style” was enhanced, which is an original and traditional way of ICANS. Actually 2/3 of topics were discussed in the workshop sessions. In each plenary session, overall issues in a relevant workshop were taken up for discussion, whose details were talked or discussed in the workshop. In particular, active discussion continued among not only panelists but also participants in the featured integrated interface plenary session of this meeting.

On Wednesday afternoon, an excursion and banquet were held to get the participants closer to Japanese local historical culture, especially in Mito area. The beach seining, which was a traditional fish catching method, was done for excursion at Oarai coast near Mito city. In spite of poor weather, lots of fish were caught and participants also feasted on fresh fish in BBQ. In the banquet, there was a show called “Yansa-Drum”, that was the ceremonial music performed in central eastern area of Ibaraki to wish

SANS and reflectometers were open with responsible expert for each neutron instrument. Enthusiastic discussions about instruments were continued until the ending time.

Finally, it was informed that next ICANS XXII meeting would be hosted by ISIS, STFC, UK in 2017.

The one scene in integrated interface plenary session. The active discussions continued among not only panelists but also participants.

Ryoichi Kajimoto

J-PARC

Neutron Scientist Meets International Polymer Conference in Yogyakarta, Indonesia

With the aim of promoting neutron science to polymer and materials scientists in Indonesia and region, several neutron and also X-ray synchrotron scientists who work in polymer science have been invited in the Innovation in Polymer Science and Technology 2013 (IPST2013) Conference, held in Yogyakarta, Indonesia on October 7 – 10, 2013. The event was organised by Indonesian Polymer Association (HPI) under the auspices of Federation of Asian Polymer Societies (FAPS). This polymer conference was a joint event with the 4th International Conference on Fuel Cell and Hydrogen Technology (ICFCHT2013), hosted by Agency of the Assessment and Application of Technology (BPPT) Indonesia, Universiti Kebangsaan Malaysia (UKM) and Universiti Teknologi Malaysia (UTM) under the auspices of the International Association for Hydrogen Energy (IAHE).

This event which is a continuant of the previous IPST2011 conference has been attended by more than 350 registered participants from 24 countries of 5 continents, including about fifty plenary and keynote speakers from cross the world. During two and half days conference it has been presented about 320 paper works (212 abstracts from IPST2013 and 108 abstracts from ICFCHT2013) covering of 6 topics in polymer science & technology meeting and 4 topics in fuel cell & hydrogen technology meeting. It was a truly major international scientific meeting that organised by Indonesian Polymer Association.

In both conferences there were invited speakers who presented their polymer research by neutron or X-ray scattering, i.e. Mitsuhiro Shibayama of University of Tokyo, Japan delivered “Structure and Properties of Tough Polymer Gels”; Satoshi Koizumi of Ibaraki University, Japan presented “In-situ Observation of Operating Polymer Electrolyte Fuel Cell (PEFC) by Neutron Small-Angle Scattering-Contrast Variation by Using Deuterium”; Shotaro Nishitsuji of Yamagata University, Japan presented “Structure Analyses of Rubber/Filler System under Shear Flow by using Time Resolved USAXS Method”; Mikihito Takenaka of University of Kyoto, Japan spoke about “Scattering Studies of Hierarchical Structures in Low Rolling Resistance Tires”; Goran Ungar of Zhejiang Sci-Tech University, China and University of Sheffield, UK talked about “Self-Assembly of Organic and Hybrid Materials as Studied by Small- and Wide-Angle X-Ray and Neutron Scattering”, Avadhesh Kumar Gupta of Indian Institute of Technology Delhi, India “Crystallization and Crystal Structure in Semi-crystalline Polymers, Blends, and Composites”. Among the participants, Ananda Putra of University Andalas, Padang, Indonesia also presented his work on “Visualization and Real-Time Observation of Water in the Polymer Electrolyte Fuel Cell”.

As relatively new and powerful technique in polymer sciences, during the conference, the presentations on neutron or X-ray scattering have fascinated much attention of the local and regional polymer scientists for having further discussion in investigating the structures and dynamics of polymers in the nanomater scale level. Considering that neutron scattering facility is available in Indonesia as well as X-ray synchrotron facility in Thailand, we believed that for the coming years a lot of polymer research by regional scientists will be carried out using either neutron or X-ray synchrotron. It will be a good sign in emerging neutron community along with X-ray synchrotron community in the region, especially in South East Asia.

At the second day of conference, all participants attended the Ramayana Ballet presenting spectacular legendary show of Ramayana epic by more than 250 assorted dancers and gamelan musicians. It was held at an outdoor open theater (episodic and full story) with the magnificent Prambanan temple as a scenic background. Ramayana is performed without dialogue, but dance and gamelan accompaniment only and it has amazed all spectators from beginning until the end of show.

Edy Giri Rachman Putra
National Nuclear Energy Agency (BATAN) Indonesia
and
Former Deputy Chairman of Indonesian Polymer Association

Announcement for AOCNS2015

The Organising Committee are pleased to announce that the 2nd Asia Oceania Conference on Neutron Scattering (AOCNS) will be held in Sydney from 19-23 July 2015. The Conference will provide delegates with an opportunity to share knowledge and understanding, examine research findings and discuss the latest developments in neutron scattering. AOCNS is aimed at those who use (or would like to use) neutron scattering facilities in the Asia-Oceania region. It will bring together physicists, chemists, biologists, earth scientists and engineers together with specialist facilities-based neutron scatterers from throughout the Asia-Oceania region and beyond.

Sydney, Australia is the host city for the AOCNS2015. Sydney is Australia's global city, with a wide-ranging cultural life, dynamic food scene and vibrant cityscape of outstanding contemporary and colonial architecture. Iconic beaches and five major national parks deliver unforgettable experiences.

The social program will provide a unique Australian experience and will be an opportunity for delegates to come together to build networks and relationships away from the formality of Conference sessions.

Please visit www.aocns2015.com for more information and to register your interest.

Chris Ling
Conference Chair and Secretary of AONSA

Calendar of AONSA Activities

Year 2014

Date	Events
Feb.4-8	Pre-Conference School on Neutron Scattering at BARC (Mumbai, India)
Feb.10-12	Conference on Neutron Scattering (CNS 2014) (Pune, India)
Feb.20	8th AONSA Facility Directors' Meeting (Daejeon, Korea)
Feb.21	12th AONSA EC Meeting (Daejeon, Korea)
Apr.1-2	SIEA2014 (Lucas Heights, Australia)
May11-16	QENS/WINS 2014 (Autrans, France)
June1-5	American Conference on Neutron Scattering (Knoxville, USA)
July14-18	18th AINSE-ANSTO Winter School
Aug.5-8	23rd IUCr Congress and General Assembly (Montreal, Canada)
Sep.8-9	NSRRC SANS workshop (Hsinchu, Taiwan)
Sep.15-19	PNCMI2014 (Sydney, Australia)
Sep.24-26	NOBUGS2014 (Tsukuba, Japan)
Sep.29-Oct.3	International Collaboration on Advanced Neutron Sources (Mito, Japan)
Oct.15	9th AONSA Facility Directors' Meeting (Serpong, Indonesia)
Oct. 16	13th AONSA EC Meeting (Serpong, Indonesia)
Oct. 12	AONSA Special Session for IYCr2014 (Serpong, Indonesia)
Oct. 12-17	6th AONSA Neutron School (Serpong, Indonesia)
Oct. 12-16	8th International Workshop on Sample Environment at NS Facility (Oxford, UK)

Year 2015

Date	Events
Jan.27-31	XVII BARC/NSSI pre-conference school on neutron scattering (Mumbai, India)
Feb.4-5	5th BARC/NSSI Conference on neutron scattering (Mumbai, India)
June21-26	Gordon Research Conference on Neutron Scattering (Hong Kong, China)
July13-31	HERCULES School (Taiwan)
July 18	9th AONSA Facility Directors' Meeting (Manly, Australia)
July 19	14th AONSA EC Meeting (Manly, Australia)
July 19	2nd AONSA Instrument Scientist Workshop (Manly, Australia)
July 19-23	2nd AOCNS (Manly, Australia)
Aug.30-Sep.4	6th European Conference on Neutron Scattering (Zaragoza, Spain)
Sep.16-18	16th International conference on Small-Angle Scattering
Dec.X	10th AONSA Facility Directors' Meeting (Tokai, Japan)
Dec.X	15th AONSA EC Meeting (Tokai, Japan)
Dec.1-4	7th AONSA Neutron School (Tokai, Japan)