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## President's comment

By **Prof. Mahn Won Kim**,  
*President and Professor*  
*AONSA and KAIST*



### Sharing and Promoting

I am very pleased to report some of AONSA activities during 2009. Since AONSA has been formed on August 28<sup>th</sup> 2008, we had the 2<sup>nd</sup> AONSA Executive Committee Meeting in Taiwan from Feb. 23<sup>rd</sup> to 24<sup>th</sup> 2009 hosted by Prof. Wen Hsien Li of Taiwan Neutron Science Society. And, we had the informal EC meeting at ANSTO with many other groups from Asia and Oceania region just before the 2<sup>nd</sup> AONSA Neutron School. These EC meetings were for the finding the regional needs of the neutron scattering community and for the steering of AONSA activities.

I feel very comfortable now on the output of the AONSA Neutron School for the promoting the regional neutron society after two successful events, once at the KAIST and the other at ANSTO during this summer. Furthermore, the next two AONSA Neutron schools are already arranged: INSS will host the third Neutron School on next year and a following year the JSNS will host the fourth Neutron School. Another news is that the JSNS will host the regional conference (Asia Oceania Conference for Neutron Scattering: AOCNS) during 2011. The AOCNS will provide the platform to promote and share the output of research.

One of AONSA goals is to promote the optimized use of present and future neutron sources in region that involves the sharing of facilities. The Association should provide the software for this goal or at least start to have a discussion. I believe that most important software is a good communication, intention and openness among members. I hope that this newsletter provides to accommodate this need.

I would like to express my sincere appreciation to the Executive committee and board members for helping me as the first president of AONSA to make this association having the bright future.

## Neutron School and AONSA

### ANSTO – AINSE Neutron School

The ANSTO – AINSE Neutron School is a 5 day school, held at ANSTO, Lucas Heights.

The Neutron School has been running for two years. In 2009 it was combined with the AONSA school.

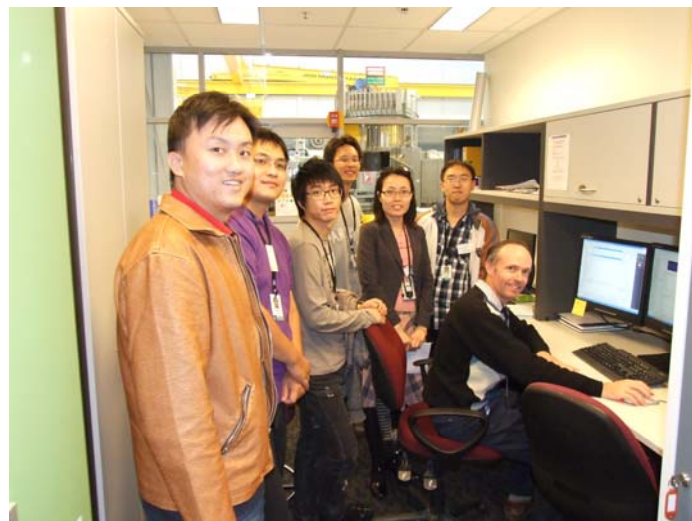
This school provides training for newcomers to neutron scattering focusing on nanoscience.

There are not only lectures, but also practical sessions with hands-on experiments and data analysis.

All neutron techniques (available at ANSTO) are covered in the school, i.e. powder diffraction, single-crystal diffraction, strain scanning, small-angle scattering, reflectometry, and inelastic scattering using three-axis spectrometers.

AINSE provides travel and accommodation support for those participants, who attend, who are from AINSE member Universities.

Out of the 41 participants that attended the 2009 AONSA / Neutron School 20 were from AINSE member universities. AINSE provided travel and accommodation support for these participants.



### AONSA 2008

AINSE provided support for AINSE 4 students and 1 lecturer to from member universities to attend the 1<sup>st</sup> AONSA school which was held in Korea in 2008.



2<sup>nd</sup> AONSA Neutron School, ANSTO Lucas Heights 2009

## The status of Taiwan Neutron Scattering Society

Taiwan neutron scattering society (TWNSS) was formed in 2008. The number of members at beginning is 36 people. Up to now, 66 people are in this society. It covers a wide range of scientific disciplines including physics, chemistry, and biology. A general assembly meeting is held in National Taiwan University on Feb. 14, 2009. 42 people attended the meeting. The first chairperson elected is Professor Wen-Hsien Li from Department of Physics, National Central University. The deputy chairperson is Professor Hsi-Mei Lai from Department of agriculture chemistry of National Taiwan University and the secretary is Professor Chih-Hao Lee from Institute of Nuclear Engineering and Science, National Tsing Hua University.

In the last year, A X-ray and neutron scattering special interest group was also formed in the National Synchrotron Radiation Research Center, Taiwan. The first chairperson of leading this group is Professor C.H.Du, (Department of Physics, Tamkang University). With this interest group formed, the well-established synchrotron radiation users can talk to neutron users closely and hope they can use neutron beam as a complementary tool.

On Feb. 23-24, the executive committee (EC) meeting of AONSA was held at National Center of Traditional Art in Taiwan. Fig. 1 shows the EC members stroke on the street of the center before meeting and Fig. 2 shows Professor Hsiung Chou (National Sun-Yat San Univerisity) played a traditional top (gyro) which might relate with neutron spin.

In the first half of year 2009, 11 neutron proposals were submitted to OPAL reactor asking for beam time before the completion of our Taiwan-Australia beamline (SIKA). To prompt more neutron users, a three-day neutron school will be held in November 20-22 this year. This is a third neutron school in Taiwan. About 90 people will attend this neutron school. An advertisement brochure is also edited for widely distributed among the scattering community.



Fig. 1. The EC meeting held in Taiwan.

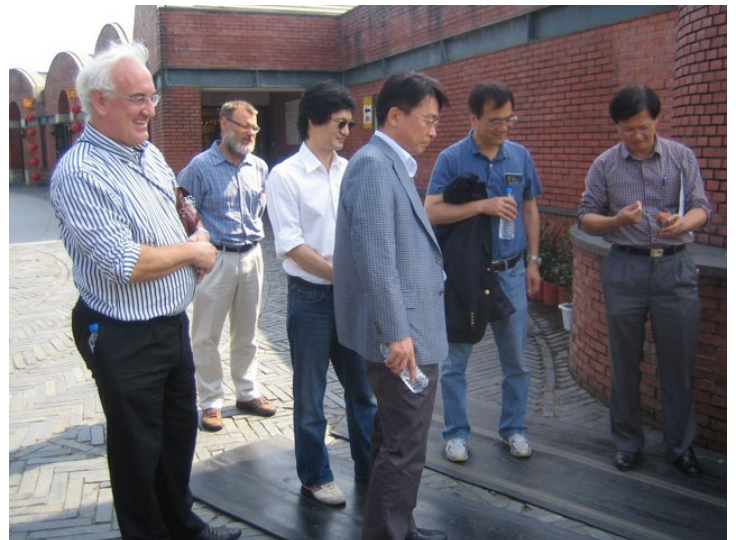


Fig. 2 The EC members play top in Taiwan

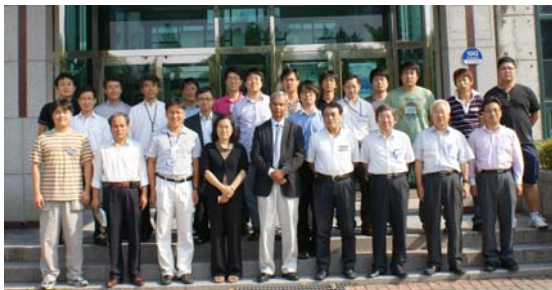
## Korean Neutron Beam Users Association (KNBUA)

The KNBUA annual general meeting was held in May 28<sup>th</sup>, 2009 at KAERI during the HANARO Symposium 2009. All workshops and schools sponsored by the KNBUA in 2008 and early 2009 were reported together with recent AONSA activities which include a) the 4<sup>th</sup> International Symposium on the Characterization of Metals and Nanostructured Materials by Using Neutron and Synchrotron X-ray scattering (April 25, 2008, Daejeon), b) The 1<sup>st</sup> AONSA Neutron Summer School (August 18-23, 2008, KAIST), c) Tutorial on Neutron Diffraction for Residual Stress Measurement and Analysis (October 1-2, 2008, KAERI), d) The 6<sup>th</sup> Workshop on X-ray and Neutron Scattering Techniques for Surface Nano-characterization (December 11-12, 2008, PAL), and e) The 9<sup>th</sup> Japan-Korea Meeting on Neutron Science (February 9-10, 2009, Pusan Univ.).

The followings are activities in 2009 after the annual general meeting.

### The 1st Special Summer Lectures on Neutron Physics, Optics, and Precision Measurements.

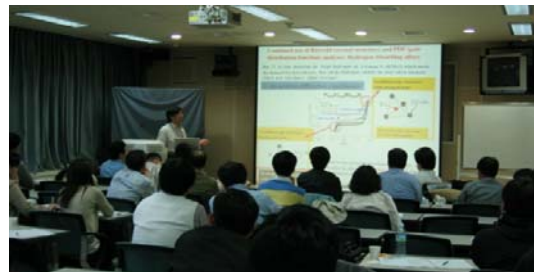
The lectures, hosted by the HANARO and sponsored by the KNBUA, were held at KAERI from August 24 till August 26, 2009. Three invited speakers, Dr. Muhammad Arif from NIST, and Dr. Hirohik M. Shimizu from KEK, and Dr. Pil-Neyo Seo from Duke University gave a series of lectures on fundamental neutron physics, neutron optics and detection methods in neutron physics together with their various applications. The lectures were attended by about 60 graduate students, professors, and researchers.



### Tutorial on Neutron Diffraction and SANS Techniques for Materials Science

The tutorials, hosted by the HANARO and sponsored by the KNBUA, were held at KAERI during October 20 -21, 2009. Three invited lecturers, Dr. Ken-ichi

Ohshima from Tsukuba University, Dr. Takashi Kamiyama from J-PARC, and Dr. Masato Ohnuma from NIMS, gave lectures on i) Introduction to Crystallography Theory and Its Applications, ii) Introduction to Rietveld Method and Its Applications, and iii) Introduction to Small Angle Scattering and Its Applications, respectively. The tutorial was attended by over 40 undergraduate and graduate students and the participants enjoyed computer-based hands-on crystal structure analysis lead by Dr. Seong-Su Lee at KAERI.



### The 5th International Symposium on the Characterization of Metals and Nanostructured Materials by Neutron and Synchrotron X-ray Scattering

The symposium, co-organized by the HANARO, Sunmoon University and POSTECH and co-sponsored by the KNBUA, KIMM and MEST, was held at Daegu EXCO on October 22, 2009. There were 15 talks including 4 invited talks by Dr. K. Ohshima from University of Tsukuba, Dr. S.T. Hong from LG Chem Research Park, Dr. M. Ohnuma from NIMS, and Dr. N. Tamura from Lawrence Berkeley National Laboratory, which covered various aspects of neutron and x-ray diffraction studies including lithium-ion battery, alloys, steels and fuel cell membranes. The symposium was attended by over 100 participants.



## AINSE / ANBUG Neutron Scattering Symposium

### AANSS

The AANSS is a yearly conference held at AINSE, Lucas Heights.

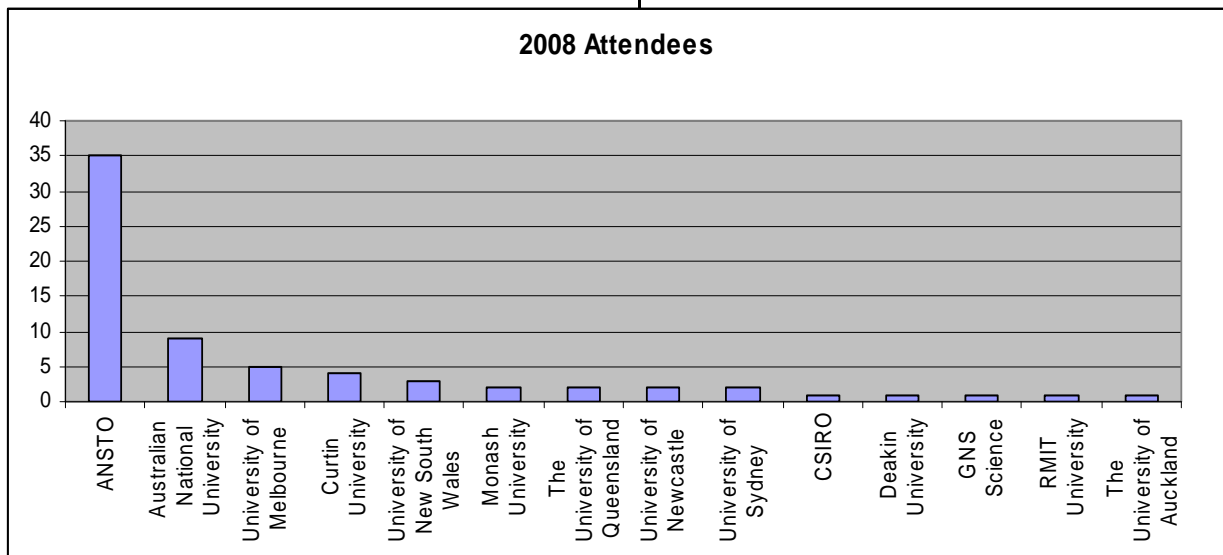
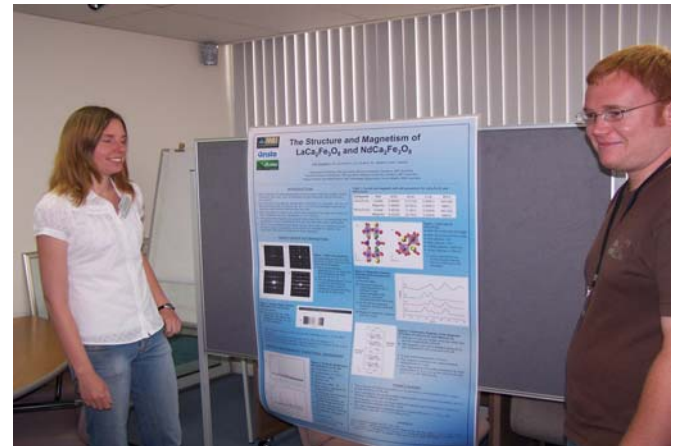
The conference is held at the end of the year and attracts between 50 – 90 delegates from Australian and New Zealand Universities as well as International Guests. The photos are from the Symposium in December 2008.

The conference has been running for 8 years, with a wide variety of participants from Australian and New Zealand Universities as well as international guests. Prior to this a variety of conferences have been organised on a variety of Neutron Scattering topics

The main goals of the conference is

- To present some of the best recent results in Australian and international neutron scattering science;
- To promote graduate student research activities;
- To engage local researchers, especially students, in the possibilities and practice of neutron scattering methods;
- To highlight the capabilities of the new OPAL neutron beam facility at Lucas Heights, both at the date of the Symposium and in the near future;
- To highlight the complementarity of neutron and x-ray scattering, particularly synchrotron X-ray scattering.

AINSE provides travel and accommodation support for delegates who are either presenting an oral or poster that is attending from AINSE member universities.



## AINSE Winter School

### What is the AINSE Winter School?

The AINSE Winter School started in 1997 and is a successful promotional and marketing tool for AINSE. Students who attend the school are from a variety of backgrounds as demonstrated attached appendix.

The AINSE Winter School is a scholarship to each of its member universities which enables a nominated student to attend a 5 day program on *Applications of Nuclear Techniques*. The School is held at ANSTO, about 30km south of Sydney.

### Who is the Winter School open to?

The scholarship is open to all senior undergraduate students in which knowledge of nuclear techniques of analysis would be of interest. Such techniques have applications in areas ranging from agriculture to zoology and include physics, chemistry, biology, environmental science, geography, geology, and archaeology.



### What does the Winter School involve?

The Winter School involves a mixture of lectures, experimental sessions and demonstrations including hands-on experience in experiments in neutron scattering (instruments on the OPAL nuclear research reactor), ion beam accelerators and secondary ion mass spectrometry (SIMS) (techniques of ion beam analysis of materials and applications to environmental analysis), gamma irradiation (chemical and biological effects of ionizing radiation and radiation processing), the use of nuclear techniques in environmental studies in soil and ground water (nuclear probes for metals in soils, radioactive tracers in flow studies, pollution) and



radiation safety (dose measurement, principles of radiation protection and decontamination). Tours to inspect other major facilities at ANSTO is included and a social program including dinners and speakers, encourages students to discuss important current social issues involving science and technology.

### When is the Winter School held?

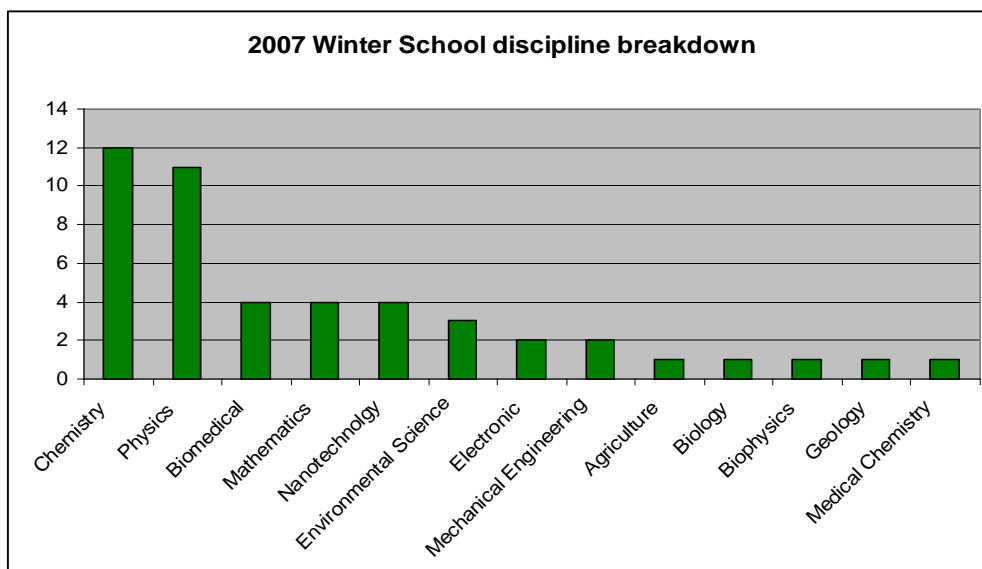
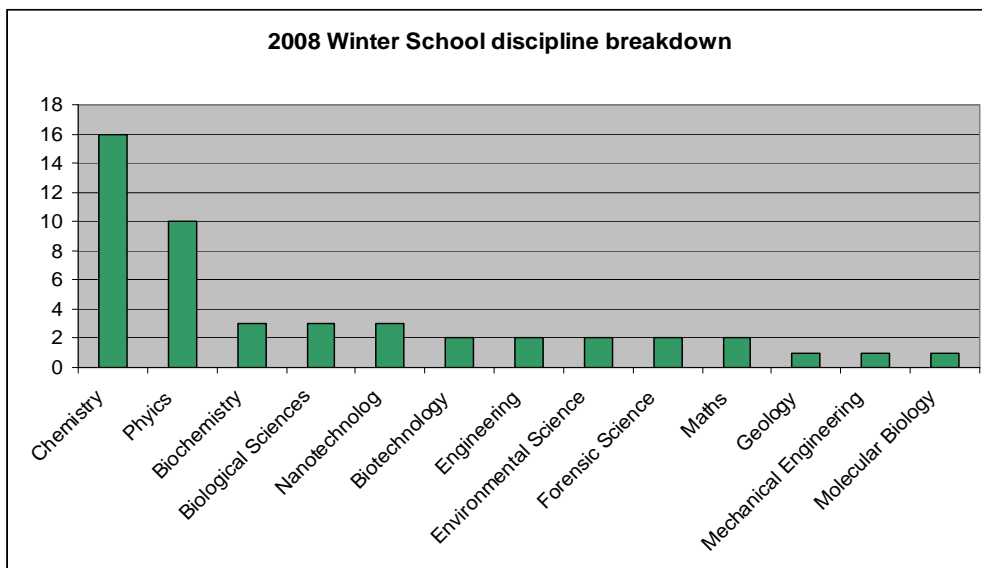
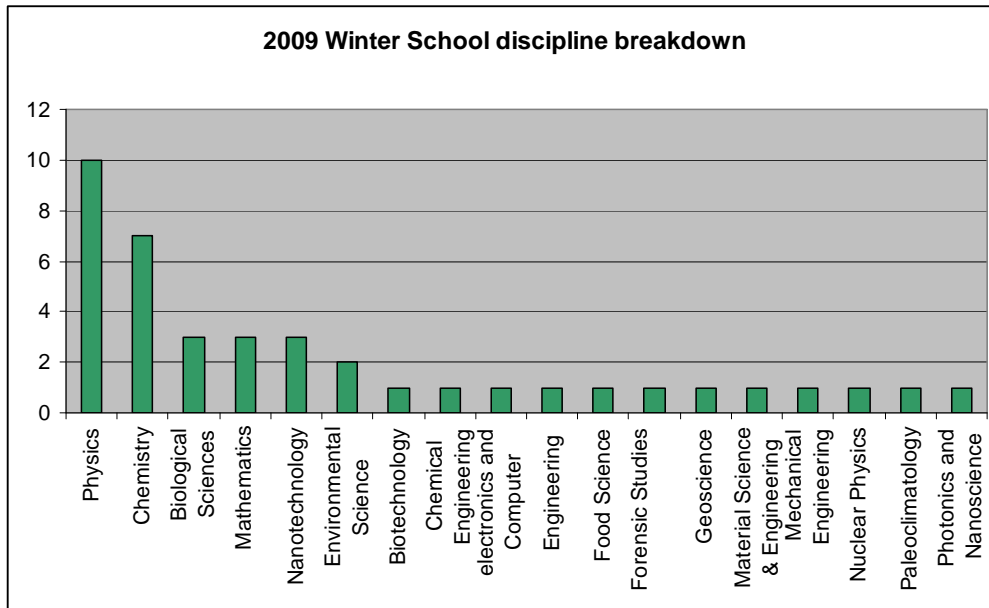
The Winter School is held in the July Holidays – the common week.



### Comment from a Winter School Student

“Best thing I have ever done, opened my mind completely – more so than 3 years of undergraduate study”

## Winter School Discipline Breakdown 2007-2009



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## **AINSE Post Graduate Research Awards**

### AINSE Post Graduate Research Awards

AINSE offers awards for postgraduate students whose research projects are associated with nuclear science, or its applications, and require access to the unique national facilities at the Lucas Heights Science & Technology Centre.

Postgraduate Research Awards are offered by AINSE for suitably qualified persons wishing to undertake studies in AINSE's field of interest for a higher degree at a member university of AINSE. Applications are particularly encouraged in fields which are related to the research activities of the Australian Nuclear Science & Technology Organisation (ANSTO) at Lucas Heights, Australia.

Research Supplements are the principal form of award and are offered to scholars who are (or will be) in receipt of an Australian Postgraduate Award (APA) or equivalent scholarship.

Supplement Stipend: \$7,500 pa.

The award also provides \$5,500 pa for costs involved in using the facilities and services at Lucas Heights. Certain travel and accommodation costs to enable students to work at Lucas Heights are also provided.

Candidates for an AINSE Postgraduate Research Supplement must be nominated by the Australian or New Zealand university where PhD enrolment is held or proposed for tenure commencing before 30 June of the year of application. The university must be a member of AINSE. There are 39 current PGRA awards of which 23 are students using the Bragg Facilities.



## A strategy of JSNS for the future development of J-PARC/MLF

In J-PARC/MLF, the first user program has started on 23 December 2008 followed by the first neutron beam on May 30 2008, opening a new history of neutron science in the world, particularly in Asia-Oceania region. J-PARC/MLF has an important mission to meet growing interest and demand for neutron beam in the field of both fundamental science and industrial application.



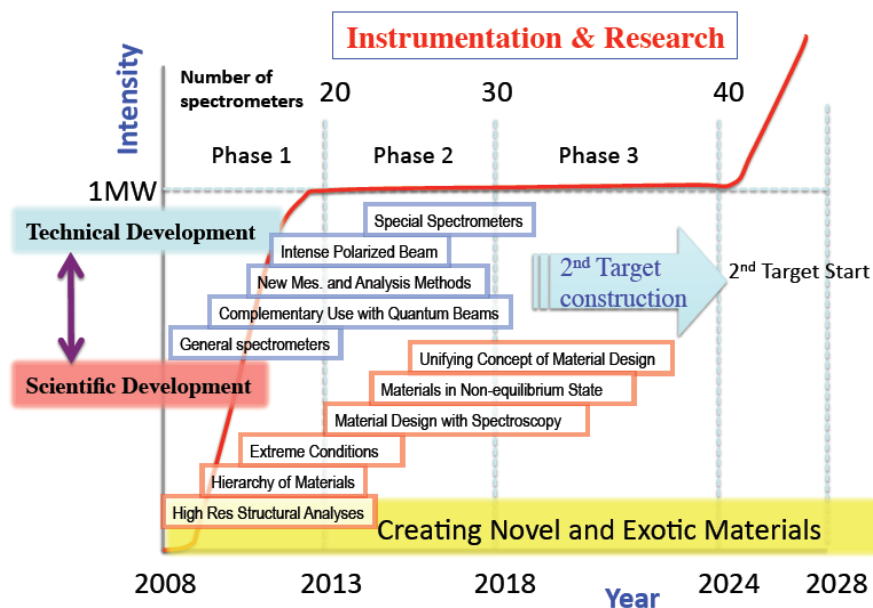
'Yell from the World' : International scientific leaders including Nobel prize winner, laboratory directors, etc., celebrating the J-PARC/MLF starting ceremony.

We, JSNS organized a special committee to discuss on 'How J-PARC/MLF should be and where should go?' This committee chaired by Prof. Kanaya in Kyoto University covers many issues from the basic concept of neutron instruments to user program. Last year, the committee figured out the line-up of the instruments, so called 'Instrumental Ground Design' in J-PARC/MLF with 23 neutron beam ports.

In addition to the Instrumental Ground Design, we made future prospects for the scientific development in J-PARC/MLF, which should be synchronized with the development of neutron beam and instrumentation (see the bottom figure). In this prospect, we predict emergence of new types of science, for example, which combines different fields by a unified concept. With the anticipated development we will definitely need a second target station within 20 years as constructed in ISIS this year.

Majority of neutron users eager to have a unified user program which combines both pulsed and steady-state neutron sources in Japan. One of future missions of JSNS is to take action to form the 'Neutron beam Platform', which has been proposed by Kanaya committee.

N. Metoki (chief secretary of JSNS)



Neutron Science Roadmap in J-PARC/MLF.

## Indian Neutron Scattering Society



At present INSS has about 80 members from universities and institutions spread all over the country. Two members of INSS are in the executive committee of the *Asia-Oceania Neutron Scattering Association* (AONSA).

INSS as its first major endeavor has recently organized a 'School and Conference of neutron scattering and mesoscopic systems' in cooperation with BARC, UGC-DAE-CSR and Goa University. The pre-Conference School including hands-on experiments was held at BARC Mumbai during October 5-10, 2009 and the Conference was held at The International Center, Goa during October 12-24, 2009.

The response to the School was over whelming. The School was planned for 40 participants mainly involving Ph. D. students and some faculty members not having exposure to neutron scattering techniques. There were about 150 applications, and it was very difficult to choose only 40 as most applicants deserved to be selected; finally 54 people were selected. All aspects of neutron scattering were covered.

Participants really enjoyed the hands-on experience on using the neutron scattering instruments at the Dhruva reactor for two days. Experiments were planned on 10 different instruments covering diffraction (powder and single crystal), SANS, reflectometry, and inelastic and quasielastic scattering. Participants were divided into different groups; each group carried out 4 experiments.

Many of the participants at the School travelled to Goa for the Conference. There were about 125 participants at the Conference, 28 invited talks (including 8 from abroad) and 97 posters. Various sessions were devoted to SANS, soft matter, structures, magnetism, diffusion, dynamics, reflectometry and detectors. A lively banquet was organized on 13 October. Overall the proceedings were well appreciated by the participants.

The General Body meeting of INSS was held at The International Center, Goa on October 12, 2009, which was well attended.

The 3<sup>rd</sup> AONSA School on neutron scattering is planned to be organized at Mumbai in India during October 4-9, 2010. It is again proposed to cover theory, hands-on experiments and data analysis. C/o Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai 400085, India

Email: [neutron@barc.gov.in](mailto:neutron@barc.gov.in)



## Report from the AONSA Office

### ➤ Staffing from April 2009

Office secretary was changed from Ayako Sato to Yukari Sugikawa.

### ➤ AONSA web site

We have corrected the country names in the website to the association (or facility) names as below.

- Korea → KNBUA
- Australia → ANBUG
- Japan → JSNS
- Taiwan → TWNSS
- India → INSS
- China → CSNS and CARR
- Indonesia → BATAN
- Malaysia → Malaysian Nuclear Agency

### ➤ Meetings and Events of AONSA

The following are the meetings and events held by AONSA in the last six months.

Title	Date	Place
AONSA Summer School	August 16-21, 2009	Lucas Heights, Sydney
Informal EC board meeting	August 14, 2009	ANSTO, Sydney
The 3rd EC meeting	October 23, 2009	Tsinghua University, Beijing

The 2nd AONSA neutron school was held in August 16-21 in Sydney. The host of the next AONSA summer school in 2010 will be INSS.

Informal EC board meeting was also held in Sydney in August as an annex meeting of the IAEA consultation meeting held in ANSTO. The minutes was circulated among EC.

The 3rd EC meeting was held during the AsCA meeting in cooperation with Chinese colleagues.

The plaque of AONSA Office has been completed.



### AONSA Office

**Many thanks to  
the writers and editors  
of this issue**

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