
**8th ASIA-OCEANA NEUTRON SCATTERING ASSOCIATION (AONSA)
NEUTRON SCHOOL – BHABHA ATOMIC RESEARCH CENTRE,
MUMBAI, INDIA**

Oleh

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The 8th Asia-Oceania Neutron Scattering Association (AONSA) Neutron School was organized by Bhabha Atomic Research Centre, Mumbai in association with Neutron Scattering Society of India, AONSA and International Atomic Energy Agency (IAEA). This neutron school was sponsored by the Board of Research in Nuclear Sciences, Department of Atomic Energy, Government of India.

The school was held at Training School Hostel, Anushaktinagar, Mumbai, India from 15 to 19 November 2016. It was attended by 14 international participants including three representatives from Malaysia, five from Indonesia, one from Vietnam, one from Bangladesh, three from Korea and one from Japan; and about 30 local participants. The previous schools were successfully held at Japan (2015), Indonesia (2014), China (2012), Australia (2011), India (2010), Australia (2009) and Korea (2008).

The school program comprised of theoretical lectures as well as hands-on experiments delivered in five days aiming for young researchers working in the area of neutron scattering. Total up to 45 presentations were presented throughout the school covering all important aspects of neutron scattering including facilities, science and applications. The lectures on basic theories of neutron scattering techniques are given by the experts, mostly from the Asia-Oceania region. The scope of the lectures including diffraction, small-angle scattering, reflectometry, inelastic scattering and quasielastic scattering. The lectures during the school were also emphasized the application of neutron scattering techniques to the area of strongly correlated electron systems, critical phenomena and phase transitions, functional materials, nanomaterials, amorphous materials and liquids, soft matter and biological systems, energy and green materials, thin films and multilayers and neutron instrumentation.

The hands-on experiments were held at the National Facility for Neutron Beam Research (NFNBR), operated by the Solid State Physics Division (SSPD), Bhabha Atomic Research Centre (BARC), Mumbai. It has been built around Dhruva Research Reactor. Dhruva is a 100 MW natural uranium fueled thermal reactor with peak thermal flux of 1.8×10^{14} n/cm²/sec. The neutron scattering facilities are extensively used by SSPD scientists as well as by a large number of other users all over India including the universities. There are eight instruments in the reactor hall and four in the Guide-tube laboratory. Every participant has been arranged in groups and each group is scheduled to perform the hands-on experiments at two instruments. The instruments available for the experiments were Powder Diffractometers, High-Q Diffractometer, Single Crystal Neutron Diffractometer, Quasi Elastic Neutron Scattering, Triple Axis Spectrometer, Polarized Neutron Spectrometer, Small Angle Neutron Scattering and Polarized Neutron Reflectometer.



Participants, experts and instructors of 8th AONSA Neutron School at Dhruva Research Reactor. International participants of 8th AONSA Neutron School.

In general, the school had given all the participants the opportunity to learn and work together with the experts in gaining theoretical and practical knowledge in the area of neutron scattering and its applications. Involvement of the participants in group discussion and hands-on experiments was very vigorous due to various individual research areas and background. In particular, it is a great pleasure for me to be selected as one of the participants of 8th AONSA Neutron School. I'm a novice in the neutron field as my background is Computational Mathematics. From this school, I learned a lot of basic theories related to neutron scattering techniques throughout the series of lectures. The hands-on experiment sessions were very fruitful as I could get to know more about the instruments and how to handle the data analysis especially for diffractometers. The knowledge and experienced in Dhruva will definitely be applied to my current work of designing the model of neutron optic and experiment setting.

Besides the successful event of the neutron school, the Mumbai city which is previously known as Bombay, itself left the fondest memories. We have the occasions of testing the marvelous authentic Indian foods in special dinners at the selected hotels arranged by the organizer. With the help of local participants that gladly took us for a walk in the city of Mumbai, we experienced the chaotic streets and vibrant of the city as we have the opportunities of taking the crowded local train and auto-rickshaw as we always saw in the Bollywood movies. We also got a chance to go sightseeing and visiting fascinating tourist attraction places such as the Gateway of India, Taj Mahal Hotel and Marine Drive.



In local train



Taj Mahal Hotel