A first-of-its-kind research facility in South-east Asia

1. **Singapore, 12 December 2011**— The Institute of Chemical and Engineering Sciences (ICES), a research institute of the Agency for Science, Technology and Research (A*STAR) has set up a dedicated X-ray Absorption Facility for Catalysis Research (XAFCA) at National University of Singapore (NUS)-Singapore Synchrotron Light Source (SSLS). The first-of-its-kind research facility in South-east Asia is able to perform advanced research on catalysis, materials and environmental sciences as announced at the official opening today.

2. The XAFCA is an X-ray absorption facility using synchrotron radiation as a tool for catalyst characterisation. Catalysts are the work horse of the chemical and petrochemical industries. About 90% of all chemical processes rely on them. Through the catalyst characterisation process, it enables researchers to get a deeper understanding of the nature of the active catalytic sites on the catalyst during the reaction, allowing them to unravel the structural, chemical and electronic properties as the reaction proceeds. This level of understanding is crucial to develop novel and improved catalytic materials.
3. With the opening of the facility it will also allow the study of other materials with applications in important fields such as electronic, energy storage, batteries and fuel cells. The new XAFCA facility will enable companies based in the region to partner ICES to develop novel energy storage materials for improved and effective batteries and devices. It can also provide relevant information for a better understanding on how cathode and anode materials work, allowing for the development of advanced energy storage systems with higher capacity and power, durability and at a lower cost.

4. Dr Keith Carpenter, Executive Director, ICES, said, “The XAFCA facility provides a value proposition for the chemicals industry—through the study of catalytic reactions, we can understand the behaviour of the active sites during the reaction. By understanding exactly how the catalyst works, the selectivity and robustness can be improved to give higher yield and reduced manufacturing costs in many chemical industries coupled with reduced environmental impact.”

5. Professor Mark Breese, Director of SSLS at NUS, said, “The opening of the beamline facility marks a milestone for us by expanding our capabilities and integrating with in-situ analysis. Since SSLS was commissioned in 1999, its scope of analytical applications and number of beamlines have had increased. I am confident this effort will create a vibrant research environment that will drive advancement in synchrotron radiation instrumentation.”

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For media enquiries, please contact:

Ms Caroline Chia  
Institute of Chemical and Engineering Sciences  
Tel: (+65) 6796 3884  
Mobile: (+65) 9170 3988  
Fax.: (+65) 6873 4805  
Email: chialic@scei.a-star.edu.sg

Ms Chew Huoy Miin  
Senior Manager, Media Relations  
Office of Corporate Relations  
National University of Singapore  
Tel: (+65) 6516 6822  
Fax: (+65) 6775 7630  
E-mail: miin@nus.edu.sg

About the Agency for Science, Technology and Research (A*STAR)

The Agency for Science, Technology and Research (A*STAR) is the lead agency for fostering world-class scientific research and talent for a vibrant knowledge-based and innovation-driven Singapore. A*STAR oversees 14 biomedical sciences and physical sciences and engineering research institutes, and six consortia & centres, located in Biopolis and Fusionopolis as well as their immediate vicinity.

A*STAR supports Singapore's key economic clusters by providing intellectual, human and industrial capital to its partners in industry. It also supports extramural research in the universities, and with other local and international partners. For more information about A*STAR, please visit www.a-star.edu.sg.

About Institute of Chemical and Engineering Sciences (ICES)

The Institute of Chemical and Engineering Sciences (ICES) is a member of the Agency for Science, Technology and Research (A*STAR). Established in 2002, its mission is to carry out world class scientific research, to develop novel technology and to nurture creative scientists and engineers to support economic growth in Singapore and to make a positive difference to society. The research area covers chemistry and chemical engineering science, combined with advanced analytical characterisation and measurement to develop state of the art technology for the petrochemical, general chemical, fine chemical and pharmaceutical industries. For more information, visit www.ices.a-star.edu.sg.
About National University of Singapore (NUS)

A leading global university centred in Asia, the National University of Singapore (NUS) is Singapore’s flagship university which offers a global approach to education and research, with a focus on Asian perspectives and expertise.

NUS has 16 faculties and schools across three campuses. Its transformative education includes a broad-based curriculum underscored by multi-disciplinary courses and cross-faculty enrichment. Over 36,000 students from 100 countries enrich the community with their diverse social and cultural perspectives.

NUS has three Research Centres of Excellence (RCE) and 21 university-level research institutes and centres. It is also a partner in Singapore’s 5th RCE. NUS shares a close affiliation with 16 national-level research institutes and centres. Research activities are strategic and robust, and NUS is well-known for its research strengths in engineering, life sciences and biomedicine, social sciences and natural sciences. It also strives to create a supportive and innovative environment to promote creative enterprise within its community.

For more information, please visit www.nus.edu.sg.

About National University of Singapore (NUS)-Singapore Synchrotron Light Source (SSLS)

National University of Singapore (NUS)-Singapore Synchrotron Light Source (SSLS) is a University-level Research Centre at the National University of Singapore, under the office of the Deputy President (Research & Technology), with activities involving local and international groups from many universities, research institutes, and industry. Since SSLS was commissioned in the year 1999, its scope of activities has evolved and broadened as the number of beamlines and users has increased. It currently has a R&D program featuring micro/nanofabrication, a variety of analytical applications, and the development of advanced synchrotron radiation instrumentation.

For more information, please visit http://ssls.nus.edu.sg.