24/02/2004

HKUST Scientists Honored with State Natural Science Award

Three scientists from the Hong Kong University of Science and Technology (HKUST), were conferred the 2003 State Natural Science Award (SNSA), second class, for their distinguished contributions to advances in fundamental science.

The Chinese President Hu Jintao and the Premier Wen Jiabao attended the award ceremony held in Beijing on 20 February 2004, and presented certificates to the award recipients.

The SNSA is China's most prestigious award in the field of natural sciences. The highly competitive selection exercise involves a three-stage review by panels of experts and the award committee. In 2003, 28 projects were shortlisted from more than 100 proposals. Only one first-class SNSA award and 18 second-class awards were presented, and two of these went to HKUST.

From left: Prof Wong, Prof Ip and Dr Tang

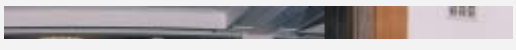
Prof Nancy Ip, Head of the Department of Biochemistry, was presented the SNSA for her discovery of novel signaling mechanisms at the neuromuscular synapse.

Dr Zikang Tang, Associate Professor of Physics, and his colleague, Prof George Wong, were honored for developing room-temperature ultraviolet-emitting laser from a thin film of nano-structured semiconductor zinc oxide (ZnO).

Synapses are the sites of communication between nerve cells or between nerve cells and target cells. Prof Ip and her research team have identified the unexpected roles of two key molecules at the neuromuscular synapse, namely cyclin-dependent kinase 5 (Cdk5) and EphA4, a member of the Eph receptor family (the largest family of receptor tyrosine kinases identified to date). These findings were published in Nature Neuroscience (2001), and in invited reviews for *Trends in Genetics* (2003) and *Journal of Neurocytology* (2004).

The identification of novel molecular players at the neuromuscular synapse provides insights into the signaling mechanisms underlying synapse formation, which may be relevant in the design of therapeutic agents for nerve-muscle disorders.

Prof Ip is also the Associate Dean of Science, Director of the Biotechnology Research Institute and Co-Director of the Molecular Neuroscience Center. She received her PhD from Harvard Medical School in 1983. As a molecular neurobiologist, she is interested in elucidating the functional roles of trophic factors in neuronal development. Her research achievements have been well recognized by the academic world. Prof Ip received the Croucher Foundation Senior Research Fellowship in 1998. In 2001, she was elected a Member of the Chinese Academy of Sciences (CAS), the highest academic honor bestowed on Chinese scientists. The same year, she led the "Molecular Neuroscience: Basic Research and Drug Discovery" research program under the Government's Areas of Excellence (AoE) scheme.



Dr Zikang Tang and Prof George Wong are responsible for

Prof Ip and Dr Tang with state leaders and other award recipients

discovering room-temperature UV lasing based on high-quality nano-structured ZnO semiconductors. For decades, UV lasing of ZnO could only be observed at low temperatures. Their discovery has stimulated worldwide interest in ZnO research, opening up potential applications for ZnO semiconductors in UV laser diodes as well as energy-saving semiconductor white light sources. Since 1996, the two researchers have published more than 15 articles, and their papers have been cited more than 640 times.

An expert in the fabrication and application of nano-structured materials, Dr Tang earned his BSc from Hangzhou University in 1983, and his PhD at Tohoku University, Japan, in 1992. Since joining HKUST in 1994, he has concentrated his research on ZnO UV light emitting thin film. In 2000, he and his colleagues broke the world record by fabricating the smallest single-walled carbon nanotubes with a diameter of only 0.4 nanometers (*Nature* , 2 November 2000), and later discovered the superconducting properties of such nanotubes (*Science* , 29 June 2001).

Prof Wong received both his BSc (1969) and PhD (1974) from the University of California, Berkeley. He joined HKUST in 1991 as a founding Professor of Physics. At HKUST, he and his colleagues developed a new generation of UV detectors using Zn based semiconductors. This technology was granted two US patents and commercialized into cost-effective UV detectors. In 1999, he was appointed Director of the Materials Characterization and Preparation Facility. A Fellow of the Alfred P Sloan Foundation, he taught at Northwestern University for more than two decades prior to joining HKUST. His other research interests include nonlinear optics and the nanostructures of semiconductors and organic materials.