

Boosting nano-electronic research

Wilfred Corrigan (Chemical Engineering 1960) visited the College in August 2006 to formally agree a generous donation of \$1 million each from LSI Logic and the Corrigan-Walla Foundation.

These gifts have enabled the College to create scholarships for Research Fellows and PhD students in nano-electronic research, a component of nanotechnology linked to the semiconductors/microelectronics industry.

The research is directly related to Wilf Corrigan's own industrial experience. Born and raised in Liverpool, he moved to the USA in 1960 after graduating from Imperial where he studied chemical engineering as an undergraduate. Wilf now lives in California but started his career as a Production Engineer at Transitron in Boston. In 1981, he founded LSI Logic Corporation and from which he recently retired as Chairman.

He pioneered modern-day gate-array, standard-cell application-specific integrated circuits (ASIC), system-on-a-chip and platform ASIC businesses. For more than 40 years he has made a vital contribution to the business and technical growth of the semiconductor industry and holds two US patents related to field-effective device manufacturing and gas etching.

His global contribution to electronics is widely recognised. He is a Fellow of the Royal Academy of Engineering and Imperial College, and holds an honorary degree from the University of Calgary in Canada.

The awards, administered by Professor Chris Toumazou, Director of the Institute of Biomedical Engineering, will seed and reinforce current research activities at the College, yielding a world class pool of scientists and engineers, specialising in nanotechnology, for the semiconductor industry.

The College has invested in state-of-the-art nano-characterisation equipment to develop a greater understanding of the fundamental science underpinning nano-electronics. The Corrigan sponsored studentships and fellowships will help Imperial to attract the best talent for the modelling and simulation of nanoscale phenomena.



Sir Richard Sykes and Wilf Corrigan at Imperial in 2006

Two studentships and one research fellowship have already been awarded. One studentship has been given to Dr Milo Shaffer's group in the Department of Chemistry, jointly with Dr J Steinke for a research project in self-assembly of carbon nanotube (CNT) devices. The first goal of the research to be carried out is a polyanatube structure with engineered molecular junctions between CNTs.

The second studentship was awarded to Professor Russell Cowburn's group in the Department of Physics, for research in magnetic nanowires for spintronic devices. Complex logic gates will be designed to perform similar functions to those usually constructed from transistors, without the need for transistor action or electrical currents. This project has enormous relevance to the future of computing, where alternatives to conventional transistors are eagerly sought as a means of continuing the size-scaling.

The Research Fellowship was awarded to Dr Konstantin Nikolic in the Institute of Biomedical Engineering, for research in nanopower, nanometre semiconductor circuits. The significance of such research is growing as transistor dimensions shrink below the 90nm scale.