Small Research Given Large Grant

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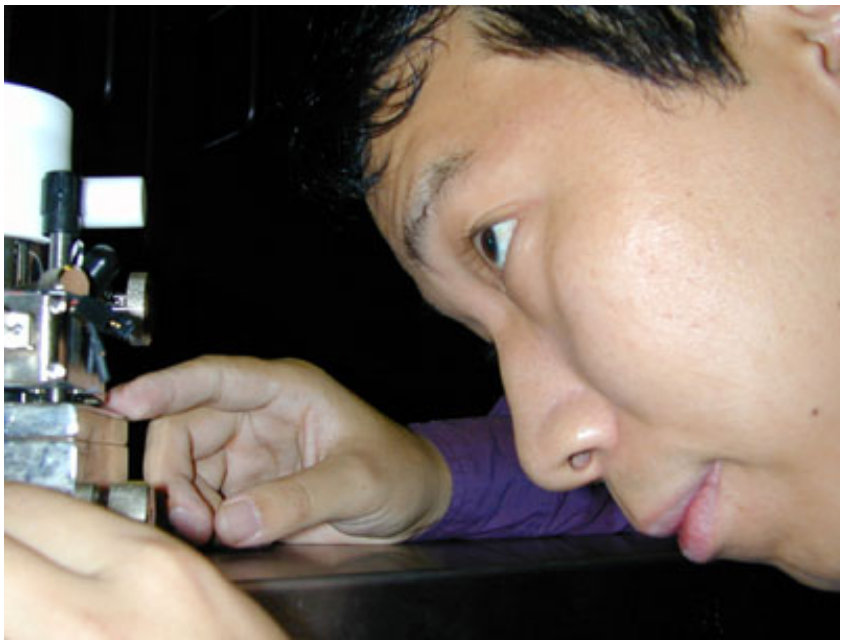
By Carol Thorbes



SFU materials chemist Hogan Yu points to the sample stage of an atomic force microscope. The microscope provides pictures of atoms on or in surfaces placed on the stage.

Simon Fraser University materials chemist Hua-Zhong (Hogan) Yu says the science of making great things come in smaller and smaller packages has made nanoscience a new focus of research funding and conferences.

Yu and two other SFU scientists, physicist John Bechhoefer and biochemist Dipankar Sen, recently received one of nine new $200,000 (over two years) federal grants for nano research.

The Natural Sciences and Engineering Research Council (NSERC) awarded the grants nationally under its new program, nano innovation platform.

It was created to help put Canada on the nano world map.

“We’ll use our grant to probe how the interactions between DNA and various proteins change the electrical conductivity of molecules. This process is fundamental to how molecules change shape and conductivity. It may ultimately impact science’s ability to halt diseases,” explains Yu.

Imagine an organic test tube – thousands of times smaller than the diameter of a human hair – travelling through the human blood system, ready to obliterate targeted cancer cells with its lethal components.

Welcome to the world of nanoscience.

The manipulation of atoms and molecules to develop nanometer sized (less than a billionth of a metre) and larger structures with novel physical, chemical and biological features – was science fiction.

But, in the last decade, the use of newly developed tools for nanoscience, such as atomic force microscopes, has led to gigantic leaps in physics, chemistry, materials science and other fields.

Yu points to carbon nanotubes, as strong as steel, but one sixth of the weight.

“Many of the extraordinary properties attributed to nanotubes have fed fantastic predictions of microscopic robots, dent-resistant car bodies and earthquake resistant buildings,” explains Yu.

“The ability to change the composition and to manipulate the structure of materials, such as silicon, has dramatically increased computer power.”

The former post-doctoral fellow of 1999 Nobel Prize winning chemist Ahmed Zewail is the organizer of this year’s annual meeting of the Pacific Centre for Advanced Materials and Microstructures (PCAMM), hosted by SFU.

For the first time, a key focus of the seven-year-old annual meeting will be nanoscience.

More than100 participants from SFU, UBC, the University of Victoria and local industries, working in different disciplines, will discuss advanced materials and nanoscience issues.

“The posters and discussions coming out of this meeting will help advance commercialization of new discoveries in nanoscience and engineering,” predicts Yu.

The free PCAMM meeting takes place on Dec. 6, from 9 a.m. to 5 p.m. at the Halpern centre on the Burnaby campus.

Yu is accepting electronic submissions of proposed conference presentations until Dec. 2. Contact Yu at 604-291-5601 or hzyu@sfu.ca

>>back to SFU News

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