

World's Most Precise Microscope Headed For UVic

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A new microscope that views the subatomic universe -- the first of its kind in the world -- is being built for the University of Victoria, Canada, in collaboration with Hitachi High-Technologies.

The new [microscope](#)—called a Scanning Transmission Electron Holography Microscope (STEHM) -- will use an [electron beam](#) and holography techniques to observe the inside of materials and their surfaces to an expected resolution as small as one-fiftieth the size of an atom.

“The capabilities of this microscope are awesome—it’s really like having 100 microscopes in one,” says Dr. Rodney Herring, a UVic mechanical engineer and the lead researcher on the project. “The fact that we’ll be able to look at things clearly, from a 100 times magnification to millions of times magnification, means that researchers from many different disciplines can use this machine.”

The microscope will be used by physicists, chemists, biologists and medical researchers around the globe to investigate new materials in areas as diverse as manufacturing, electronics, biotechnology, fuel cell technology, construction and defence.

Hitachi High-Technologies is building the microscope in Japan. When installed in late 2010, it will occupy a specially adapted room of its own in one of UVic’s science buildings. It is expected to be operational by early 2011.

“Hitachi is proud to be part of this opportunity,” says John S. Wilding Cole, president of Hitachi High-Technologies Canada. “Our strong belief is that, with the unique research environment provided at the university and the long-term experience in the manufacturing of instrumentation at Hitachi Naka Works in Japan, we will be opening a new chapter in the development of state-of-the-art instrumentation.

“This joint project will become the focal point for new discoveries at the [atomic level](#) and provide a platform for innovation for many years. We hope that this project will herald a new era of joint development and innovation between the University of Victoria and our company, and between Canada and Japan.”

“We are extremely grateful to Hitachi High-Technologies for its generous contribution to the advancement of nanotechnology in BC and Canada,” says UVic President Dr. David Turpin. “This infrastructure will help Canadian researchers—including those at UVic—to answer some of the fundamental questions of science and allow Canada to compete in the global field of nanoscience.”

The STEHM purchase is being funded by a pre-existing \$8 million award—\$4 million from the Canada Foundation for Innovation and \$4 million from the British Columbia Knowledge Development Fund.

Building on UVic’s research and development, Hitachi High-Technologies International hopes to produce this microscope for use by educational institutes, governments and industry around the globe.

Provided by University of Victoria

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