

Swinburne Knowledge Commercialisation Opportunity



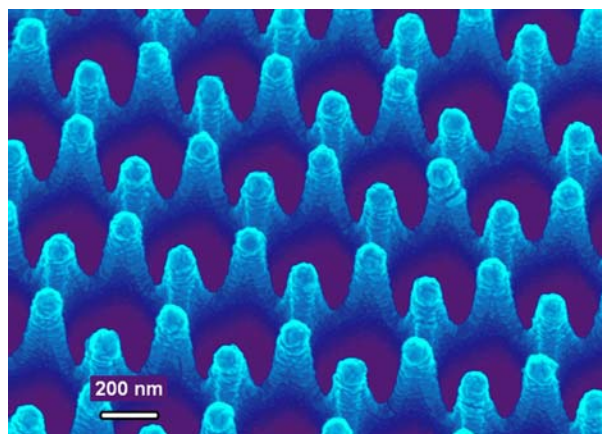
Nanoprobes

Background

Swinburne University of Technology in collaboration with Biopharmica Pty Ltd is working to commercialise the SERS (surface-enhanced Raman scattering) Nanoprobe, a device that allows the microscopic tip of an optical fibre to be used in biosensing.

SERS is a sensitive and versatile technique for detecting chemicals at trace levels in complex mixtures. Recent research in the U.S. has established that SERS can be used to perform in vivo, time-dependent monitoring of glucose levels. The development of a continuous monitoring system for glucose would allow the glucose levels of diabetes patients to be more precisely controlled, resulting in an improved long-term health outlook.

Although Raman scattering has been shown to be an extremely powerful technique for identifying chemicals and measure their concentrations in the laboratory, it remains a major challenge to perform these measurements under everyday conditions.



In order to develop more practical SERS substrates for field applications, such as the detection of glucose in blood or contaminants in water, it was recognised that the sensitivity of SERS has to be combined with the convenience and repeatability of optical fibres.

Invention

The Applied Optics research group at Swinburne, under the leadership of Dr Paul Stoddart has developed a proprietary nanostructured optical fibre technology, known as honeycomb optical fibre (HOF). These fibres are the core element for manufacturing sensitive and affordable SERS probes for compact, field-portable spectrometers.

Market

The sensor is designed to be incorporated into portable field instruments with potential in medical, military and environmental applications.

The optical fibres provide an inexpensive solid-state sensing platform with enhanced sensitivity.

Opportunity

Swinburne and BioPharmica are seeking companies and institutions interested in co-development, licensing or collaboration in the incorporation of SERS fibre optic nanoprobes into sensor devices.

National phase patent applications are filed Australia, USA, Japan and Europe.

Further information

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