

# NTU, Southampton U in photonics, optics research tie-up

New institute based in Singapore has received S\$100 million in funding for current projects

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## Singapore

IMAGINE if the Internet or electronic circuits are powered by light instead of electricity. This could be possible with the launch of a new institute devoted to photonics and optics research at the Nanyang Technological University (NTU), which has received funding of S\$100 million for current projects.

The Photonics Institute will focus on light-enabling technology such as those found in fibre-optic cables, lasers and consumer products including DVD or Blu-ray devices and even remote controls.

The national-level institute is a partnership between NTU and the University of Southampton in the United Kingdom and the latter is home to the Optoelectronics Research Centre, also known as the birthplace of the fibre-optic Internet now found in most homes.

Funded and supported by various organisations, including the Agency for Science, Technology and Research (A\*Star), the Economic Development Board Singapore and the National Research Foundation, the Photonics Institute comprises five research centres. They are:

- Centre for Optical Fibre Technology
- Centre for Disruptive Photonic Technologies

- Luminous! Centre of Excellence for Semiconductor Lighting and Displays
- Centre for Optical & Laser Engineering
- Optimus! Photonic Centre of Excellence

The institute is headed by NTU professors Tjin Swee Chuan and Nikolay Zheludev, as well as David Payne, director of the Optoelectronics Research Centre.

Speaking at the launch, Minister of State for Trade and Industry Teo Ser Luck said that the new institute would play a key role in training research scientists and engineers for both the public and private sectors.

"Over the next five years, the institute aims to train 120 post-graduates in photonics specialisations ranging

from high power lasers to metamaterials, which will help facilitate research in photonics and bring about more industrial applications of artificially-engineered materials."

He said that the partnership would position locally based photonics companies to tap global and regional growth opportunities: "The global photonics market is valued at S\$500 billion today and is projected to reach S\$1 trillion by 2020, outpacing anticipated global gross domestic product growth two-fold." Mr Teo added that Asean's rising affluence will increase demand for consumer devices, cars, and better healthcare technologies. And these trends will in turn drive the production of more products manufactured by photonics and laser-aided processes.

On Thursday, NTU also officially opened the Centre for Optical Fibre Technology, Singapore's first high-tech fibre-optic research manufacturing facility. This allows the Republic to manufacture experimental fibre optic cables for the first time.

Prof Payne said that the new centre would be able to fabricate various types of optical fibres, such as soft glass, silica and photonic-crystal fibres, as well as special fibres used in biomedical and sensing applications.

Already, the new centre has 11 projects lined up and Prof Tjin said that a key mission of the photonics institute is also to provide manpower training in the field of photonics and optics for Singapore.