



## Growing optics and photonics in Thailand

**Focus on a national effort in Thailand to boost research and investment in optics and photonics.**



More than 2100 copies of *Photonics: the miracle of light* have been sold and distributed around Thailand.

Optics and photonics in Thailand are gradually growing. On the industrial side there are more than 8000 companies and manufacturers with ~USD 0.81 billion in investments. Research activities in 14 universities and three national research institutes are also very active, especially in the fields of ophthalmic lens design, spectroscopy, optical communications, laser material processing, optical information processing, quantum information processing, sensing, security, green IT, biophotonics and nanophotonics. In addition to scientific publications, the focus is on research topics that directly respond to the needs of industries, government organizations and local communities.

Examples of the research output in field and industrial prototypes cover progressive lens designs, self-cleaning mirrors, non-invasive lie-detection systems, non-invasive credit-card verifiers, mass human temperature screening systems, non-contact lens thickness measurement systems, and surface plasmon resonance-based biosensing systems.

Apart from the research arena, scientists at national research centres, professors from local universities and engineers from companies are working together with officers from the Thai Industrial Standards Institute to revise industrial standards for fibre-optic cables and related issues. In addition, to strengthen optics and photonics kit and how to link objects in everyday life to get students' attention. In addition, the researchers gave a seminar on photonics in everyday life to 1100 students in grades 7–12 to help them understand more about optics in their science classes, as well as to motivate them to undertake optics and photonics-related science projects.

Several training courses have been arranged to fit the needs of local companies and manufacturers to strengthen their engineers. These are on basic optics and applications, Moiré and applications, optical thin films and ellipsometry, optical communications, fibre-optic components, and fibre-to-the-home technology.

Thai chapters of the main international optical societies have also been formed, and through



Thai students using the educational kit "Having fun with science using light", which has been donated to schools.

in the Thai community, in particular in education, they have been working closely to initiate activities that can help motivate new workforces, students and the general public. More than 2100 copies of the book *Photonics: the miracle of light* (in Thai) have been sold and distributed. The book aims to simply show that basic optics and applications are around us all the time. Under the "Shining Spectrum to Society" project led by Suwannee Phoojaruenchanachai, Thai researchers collected available optical and electronic components to develop an educational kit called "Long Lens with Optics" in Thai (or "having fun with science using light"). This has been donated to 14 schools in rural areas. The researchers also trained 120 teachers on how to use the educational kit. Their international speakers well known in their fields have been invited to give talks in Thailand. Becoming part of the ICO is in the interest of Thai researchers as well. In the last five years, six conferences were held in Thailand. These included four national conferences on optics and applications, the International Workshop and Conference on Photonics and Nanotechnology, and the 5th International Conference on Optical Communications and Networks.

To grow photonics in Thailand even more, new generations embedded with self creativity and self motivation are needed.

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