

Plasmonics book gives overview of technology that could revolutionise computing

A book which gives an overview of plasmonics, an area of physics that could revolutionise computing and telecommunications over the next two decades, has been published by a researcher at the University of Bath.

Dr Stefan Maier's 250-page work, *Plasmonics: Fundamentals and Applications*, published by Springer, was released last week.

In it Dr Maier, a member of the Centre for Photonics and Photonic Materials in the University's Department of Physics, describes the basics of plasmonics, in which light signals are sent down the surfaces of small metallic nanostructures.

This makes it possible to create light circuits that are much smaller than those that can be made with insulating materials such as glass, the backbone of fibre-optic communications.

The new plasmonic devices could pave the way for computer chips that transmit and process information using light instead of electrons, with vastly improved computing speeds.

This offers the promise of computers that are much more efficient than today's machines, which have developed rapidly as microchips have been made smaller. But this process is due to end shortly because the laws of nature create a natural limit to electronics.

The book, the product of one year's work, is one of first modern overviews of plasmonics since the 1980s and is aimed at those starting in the field and experienced researchers as well.

Plasmonics also holds out hope for the treatment of tumours: researchers have created tiny 'nanoshells' a hundred-thousandth of a millimetre in size that absorb infrared energy that passes through the rest of a human body.

Dr. Maier's own work is related to plasmon waveguides operating at the frequencies of visible light and at terahertz frequencies. (<http://www.bath.ac.uk/physics/groups/cppm/StefanM.php>)

Source: University of Bath

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