

Special Issue on Silicon Photonics

Call for Papers

Silicon photonics is the study and application of photonic systems which use silicon as an optical medium. The silicon is usually patterned with sub-micrometre precision, into microphotonic components. These operate in the infrared, most commonly at the 1.55 micrometre wavelength used by most fiber optic telecommunication systems. The silicon typically lies on top of a layer of silica in what is known as silicon on insulator (SOI).

Silicon photonic devices can be made using existing semiconductor fabrication techniques, and because silicon is already used as the substrate for most integrated circuits, it is possible to create hybrid devices in which the optical and electronic components are integrated onto a single microchip. Consequently, silicon photonics is being actively researched by many electronics manufacturers including IBM and Intel, as well as by academic research groups such as that of Prof. Michal Lipson, who see it is a means for keeping on track with Moore's Law, by using optical interconnects to provide faster data transfer both between and within microchips.

The propagation of light through silicon devices is governed by a range of nonlinear optical phenomena including the Kerr effect, the Raman effect, two photon absorption and interactions between photons and free charge carriers. The presence of nonlinearity is of fundamental importance, as it enables light to interact with light, thus permitting applications such as wavelength conversion and all-optical signal routing, in addition to the passive transmission of light.

In this special issue, we intend to invite front-line researchers and authors to submit original research and review articles on exploring **Silicon Photonics**.

Authors should read over the journal's [Author's Guidelines](#) carefully before submission, Prospective authors should submit an electronic copy of their complete manuscript through the journal [Paper Submission System](#).

Please kindly notice that the "**Special Issue**" under your manuscript title is supposed to be specified and the research field "**Special Issue-Silicon Photonics**" should be chosen during your submission.

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