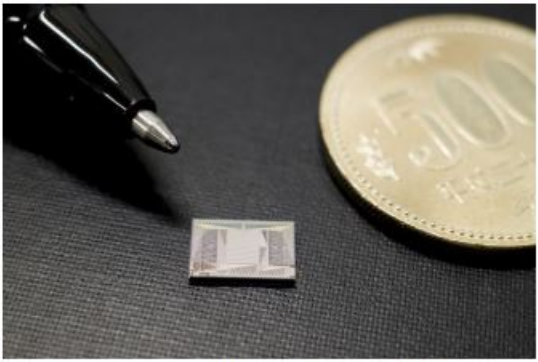
#future

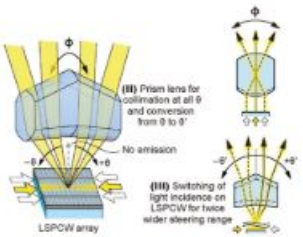
Photonic chip steers light without any moving parts

January 15, 2020 //By Julien Happich



In search for a compact and reliable LiDAR solution, researchers from Yokohama National University in Japan have developed a waveguide-based photonic chip that takes a laser beam as an input and steers light beams over a wide range of selectable angles, without involving any moving parts, not even MEMS.

Their results published in the Optica journal under the title "Wide beam steering by slow-light waveguide gratings and a prism lens" describe the use of so-called slow light modes achieved in a specially designed array of silicon-based lattice-shifted photonic crystal waveguides (LSPCW). Thanks to the integration of a six-stage TO Mach–Zehnder Si wire optical switch connected to each of the LSPCWs, the researchers demonstrated the selective light emission at discrete points of the lattice, which they could collimate thanks to a specially designed prism lens.



2D beam steering using the LSPCW array in combination with a purposely designed prism lens that maintains the output beam collimated regardless of the selected angle of incidence.