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## Evanescent-wave-coupled optical light beam deflector with symmetrical structure

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We describe the waveguide optical deflector using a Y-shaped waveguide coupled to a slab waveguide via gaps between them. An electrode is placed on each arm of the Y-shaped waveguide to control the refractive index. The device can be used in many applications, such as optical switch, printing and imaging. The input light is divided to the two arms of the Y-shaped waveguide. The light propagated in the Y-shaped waveguide is coupled to the light in the slab waveguide through evanescent field. Two lights generated by evanescent field coupling form a narrow collimated light beam in the slab waveguide, whose direction can be steered by changing the refractive index using electrodes. Simple low-capacitance stripe electrodes may enable a fast deflection. A symmetrical light beam with low side lobes is generated by a simple structure. We designed a device for semiconductor material. BPM simulation shows a deflection angle of  $2^\circ$  at a push-pull refractive index change of around  $dn/n=3 \times 10^{-3}$ . An extinction of side lobe lower than -13 dB is attained.

### Biography

Hideaki Okayama has completed his PhD from Waseda University, Japan. He is a Senior Researcher at R&D Center, Oki Electric Industry, Japan. He has published more than 100 papers in journals and conference proceedings.

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