
Fast speed beam steering based on LNOI platform

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Optical field manipulation is growing more and more important in nowadays information technology, which has been greatly developed by micro/nano-optical designs, e.g., the metasurfaces. However, most of these optical meta-devices are usually static or only reconfigurable with slow tunability, and the fast speed beam steering remains a big challenge. Here, I would like to report two progresses based on the LNOI integrated platform, where the electro-optic modulation is utilized to enable the fast beam steering. First, we demonstrate a gigahertz-rate-switchable wavefront shaping together with polarization control through the integration of metasurfaces with photonic integrated circuit. The second is the realization of fast-speed and low-power-consumption optical phased arrays based on LNOI waveguides. We believe these progresses will greatly advance the fast-speed-modulation technique from in-plane photonic processing to out-of-plane light beam steering, and empowers the technologies in application of optical communications, LIDAR, etc.



Short Bio:

Tao Li, received his PhD degree at NJU in 2005, joined College of Engineering and Applied Sciences in 2008, and was promoted to full professor in 2013. He worked as a visiting scholar in Nanyang Technology University, Singapore (2012), and Hong Kong Baptist University (2013). He was selected as the "Dengfeng Talent Program B" from NJU (2012) and "Young and middle-aged leading scientists" from MOST (2018), obtained "National Funds for Outstanding Young Scientists" (2013), "National Funds for Distinguished Young Scientists" (2023). His research interest is about micro/nanophotonics, metamaterials, and photonic integrations. Till now, he has published >130 SCI papers (including Nature, Nature Nano., Nature Commun., PRL, LSA, Optica, etc.) with citation >7000 and a recent H index of 42 (Web of Science), presented >50

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