

Giant Pockels Effect in Thin Film Barium Titanate for Reconfigurable Photonics

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Abstract

In this talk I will introduce the barium titanate photonics platform. The Pockels effect is what enables GHz-level switching speeds in optical modulators and switches, so materials which exhibit strong Pockels coefficients are advantageous as they maximize light-matter interaction. Using pulse laser deposition, we have grown single crystal barium titanate on various low index substrates and measured an r-parameter over 600 pm/V, which is nearly 20 times that of the commonly used lithium niobate. We then experimentally demonstrated polarization modulation.