

# Abstract

**Moustafa Hussein Aly**

## **Design and Performance Evaluation for 2×2 Electro-Optic Switch Based on MZI at 1.55 μm**

This paper introduces a 2×2 opto-electronic switch based on Mach-Zehnder interferometer (MZI) with a channel profile of Titanium (Ti) diffused in potassium niobate (KNbO<sub>3</sub>) at a wavelength of 1.55 μm. The ion loss and the extinction ratio are the evaluation parameters. The KNbO<sub>3</sub> crystal as a host while optimizing the Ti strip thickness to provide a remarkable switching performance. The designed switch has a high switching capability. Optimization leads to a lower switching voltage of 4 V, an ion loss of 0.044 dB and an extinction ratio of 20.9 dB.