

Characterization of Bulk BaTiO₃ Material for Optical Modulator Applications

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Keywords: bulk BTO, optical modulator, Z-Scan technique.

Abstract. In this work, different sizes of BaTiO₃ (BTO) were characterized. The effective parameters were studied to reach optimum performance in order to realize an optical modulator. The parameters such as spectroscopy, electro-optic coefficient, crystalline structure, and birefringence indicated that BaTiO₃ has an excellent behavior to manipulate the light by Pockels modulator, spatially in the field of telecom. The sample size (10×3 mm) was shown a good performance compare with other samples, for example, the BTO has low absorption, high variation of output as a function of voltage applied and good efficiency that

showed by figure of merit. In addition, a low half-wave voltage (V_{π}) was observed.