Analysis Of Strain Induced Pockels Effect In Silicon

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~~is strain?~~ Normal strain derivation.mov **Lecture 2, Shear strain (Lecture \u0026 examples) Tensor Calculus 2b: Two Geometric Gradient Examples (Torricelli's and Heron's Problems) Shear strain derivation.mov** Normal Stress and Normal Strain | Mechanical Properties of Solids | Don't Memorise Lecture 25 - Normal Strain and Shear Strain ~~Lecture 2c Maximum Shear Strain~~

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2.2 The strain-induced Pockels effect . In the linear theory of elasticity, a small deformation x ? x + u(x) is described by the symmetric strain tensor ?, defined by . ? = ? + ? (4) where u(x) represents the displacement of a material point. In order to determine the relation between ?

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Analysis of strain-induced Pockels effect in Silicon C. L. Manganelli 1, P. Pintus , C. Bonati2, F. Di Pasquale1 1Scuola Superiore Sant'Anna, Pisa, Italy 2INFN - Sezione di Pisa, Pisa, Italy

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Superiore Sant'Anna, via G. Moruzzi 1-Pisa . 2. INFN-Sezione di Pisa-Largo Pontecorvo 3-Pisa *Corresponding author: costanza.manganelli@sssup.it . Abstract: The recently

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Analysis of Strain-induced Pockels effect in Silicon We propose a theoretical model to describe the strain-induced linear electro-optic (Pockels) effect in centro-symmetric crystals. The general formulation is presented and the specific case of the strained silicon is investigated in detail because of its attractive properties for integrated optics.

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Introduction: The discovered Pockels effect in strained silicon has made silicon a promising candidate material for realizing optical modulators and switches [1]. USE of COMSOL Multiphysics: The strain profiles are computed taking into account the orthotropic model in ref [3] and the waveguide show a single mode behaviour. References: 1. B.

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2/10. Get Free Analysis Of Strain Induced Pockels Effect In Siliconeffect in Silicon Manganelli CL, Pintus P, Bonati C. We propose a theoretical model to describe the strain-induced linear electro-optic (Pockels) effect in centro-symmetric crystals. The general formulation is

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OSA | Modeling of strain-induced Pockels effect in Silicon

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Modeling of strain-induced Pockels effect in silicon

Pockels effect has been experimentally measured in strained silicon, making it a promising candidate material for realizing optical modulators and switches. In this paper we will investigate the electro-optic effect induced by applied strain gradient in silicon optical waveguides. Use of COMSOL Multiphysics®:

Analysis of Stress-induced Pockels Effect in Silicon ...

Introduction: In recent years, strain

engineering is emerging as a new frontier in Silicon Photonics. Pockels effect has been experimentally measured in strained silicon, making it a promising candidate material for realizing optical modulators and switches. In this paper we will investigate the electro-optic effect induced by applied strain gradient in silicon optical waveguides.

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Kramers-Kronig analysis of these spectra is used to predict electrorefraction modulation. More recent experimental ...

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High-speed characteristics of strain-induced pockels ...

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When 001 plates of KD2PO4 (KD*P) are used in Pockels cells, strain induced refractive index variations result in beam depolarization and transmitted wavefront distortion. The depolarization is determined by the induced birefringence while the wavefront distortion is controlled by the average index shift. Here we show that the birefringence is determined by the shear stress in the xy-plane of the crystal while the average index shift depends only on the normal stresses. Furthermore, for depolarization losses of 0.1 to 1.0% and wavefront distortion of 0.1 to 1.0[lambda], the critical range of stress is 105 to 106 Pa. We also present measured depolarization loss and wavefront distortion profiles for 5, 16 and 27cm, 95% deuterated, KD*P crystals. Using the analysis described above we show that the maximum internal stresses in the crystals are within the critical range, but that the area averaged stresses are substantially lower. We find that crystals from different locations along the length of a boule have similar strain birefringence and wavefront distortion profiles indicating that the growth conditions which generate the internal strain persist throughout much of the growth history of the boule. Finally, we discuss potential sources of strain in KD*P. 8 refs., 3 figs.

In 1945, Dr. Ernst Weber founded, and was the first Director of, the Microwave

Research Institute (MRI) at Polytechnic University (at that time named the Polytechnic Institute of Brooklyn). MRI gained worldwide recognition in the 50s and 60s for its research in electromagnetic theory, antennas and radiation, network theory and microwave networks, microwave components, and devices. It was also known through its series of 24 topical symposia and the widely distributed hardbound MRI Symposium Proceedings. Rededicated as the Weber Research Institute (WRI) in 1986, the institute currently conducts research in such areas as electromagnetic propagation and antennas, ultrabroadband electromagnetics, pulse power, acoustics, gaseous electronics, plasma physics, solid-state materials, quantum electronics, electromagnetic launchers, and networks. Following MRI tradition, WRI has launched its own series of in-depth topical conferences with published proceedings. Previous conferences in this series were: Directions in Electromagnetic Wave Modeling; October 1990 Ultra-Wideband Short-Pulse Electromagnetics; October, 1992 Ultra-Wideband Short-Pulse Electromagnetics, II; October, 1994 The proceedings of these conferences were also published by Plenum Press. This volume constitutes the proceedings of the fourth WRI International Conference dealing with Guided-Wave Optoelectronics: Device Characterization, Analysis and Design. The conference was held October 26-28, 1994, at the Polytechnic University in Brooklyn, New York, in cooperation with the IEEE Lasers and Electro Optics Society, and with the Optical Society of America. Theodor Tamir Giora Griffel Henry L. Bertoni v CONTENTS INTRODUCTORY Scanning the symposium. . . . .

. . . . 1 . . . . T. Tamir and G. Griffel Photonics in telecommunications. . . . . 3 . . . . H.

This book contains the proceedings of the third international workshop on From Parity Violation to Hadronic Structure and More. The many applications of parity violation are way beyond the scope of what Lee and Yang could have imagined fifty years after their proposal. For the physics topics discussed during this workshop, the application of parity violation has become a standard work horse allowing for the extraction of many physics topics in different experiments.