

## A novel scheme for measuring the relative phase difference between S and P polarization in optically denser medium

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Ellipsometry is a versatile and powerful optical technique for the investigation of the complex refractive index or dielectric function tensor, which gives access to fundamental physical parameters and is related to a variety of sample properties, including morphology, glass quality, chemical composition, or electrical conductivity. The mechanism of ellipsometry is based on exploiting the polarization transformation when a beam of polarized light is reflected from or transmitted through the interface or film and then obtains relative phase difference between S and P polarization. Typically, ellipsometry is applied only when light travels from air to an optically denser medium. But for the case of light travelling from an optically denser medium to optically thinner medium, it doesn't work. In this work, we demonstrate a novel setup which is used for measuring relative phase difference between S and P at oblique incidence point in optically denser medium by analyzing the relative frequency shift of adjacent axial modes of S and P resonances of a MFC. This method can make up the measure limitation of ellipsometry, and be used to measure relative phase difference inside the monolithic crystal where light travels from an optically denser medium to optically thinner medium.

### Biography

Yu Peng has completed his Ph.D. in January 2012 from Tsinghua University in China and has exchange study experience in Department of Applied Physics, University of Tokyo, Japan for 1 year. Now, he works for novel laser design and nonlinear frequency conversion in Beijing Institute of Technology, China. He has published more than 20 papers in reputed journals.

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