Thesis Title	Polarization Direction Control by Optical Fiber Phase Modulation Technique
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ABSTRACT

There are obvious advantages of being able to produce and control the state of polarization of coherence light, including the continuity of the measurement and speedy data acquisition. In this work, a technique of the phase modulation of light using polarization maintaining fiber as a medium is employed. The modulation method is performed by stretching the fiber longitudinally, by a modulator with a constant drived frequency. This allows to control the output polarized light, a rotating plane polarized beam, and orientate at a desired azimuth via the phase modulation. The results are similarly satisfied to the preliminary theoretical analysis. According to the study, optical parameters such as index of refraction, reflection coefficients of surfaces and phase shift of wave plate could be determined. Experimentally, the measured refraction indices of the samples obtained comparing to the standard refractive indices, where the measurement error of 3% is noted, and the phase shift measurement error of the wave plate of 2% is recorded.