



Optica Applicata 2009(Vol.39), No.1, pp. 77-90

Distributed measurement of mode coupling in birefringent fibers with random polarization modes

Tianhua Xu, Feng Tang, Wencai Jing, Hongxia Zhang, Dagong Jia, Xuemin Zhang, Ge Zhou, Yimo Zhang

SEARCH

[Advanced search](#)

[About Optica Applicata](#)

[Current issue](#)

[Browse archives](#)

[Search](#)

[Editorial Board](#)

[Instructions for Authors](#)

[Ordering](#)

[Contact us](#)



Keywords

white light interferometry, birefringent fibers, polarization coupling, polarization extinction ratio, random polarization modes

Abstract

A scanning white light interferometer is developed to measure the distributed polarization coupling (DPC) in high birefringence polarization maintaining fibers (PMFs). Traditionally, this technique requests only one polarization mode to be excited or both polarization modes to be excited with equal intensity in the PMF. Thus, an accurate alignment of the polarization direction with the principal axis in PMF is strictly required, which is not facily realized in practical measurement. This paper develops a method to measure the spatial distribution of polarization mode coupling with random modes excited using a white light Michelson interferometer. The influence of incident polarization extinction ratio (PER) on polarization coupling detection is evaluated theoretically and experimentally. It is also analyzed and validated in corresponding measurement that the sensitivity of the polarization coupling detection system can be improved more than 100 times with the rotation of the analyzer.



305.0 kB

[Back to list](#)

© Copyright 2007 T.Przerwa-Tetmajer All Rights Reserved 2007

stat4u