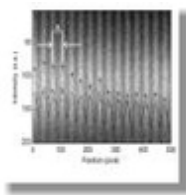


# Applied Optics

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## Direct period measurement for fiber Bragg grating using an optical imaging technique

M. M. Ali, K. S. Lim, H. Z. Yang, W. Y. Chong, W. S. Lim, and H. Ahmad » [View Author Affiliations](#)

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### Abstract

This paper proposes an approach based on an optical imaging technique for the period measurement of fiber Bragg gratings (FBG). The simple, direct technique involves a differential interface contrast (DIC) microscope and a high-resolution CCD camera. Image processing is performed on the microscope images to obtain low-noise grating profiles and then the grating periods. Adopting a large image sample size in the image processing can reduce uncertainty. During the investigation, FBGs of different grating periods are fabricated by prestraining the photosensitive fibers during the UV-writing process. A good linearity between the measured Bragg wavelengths and grating periods is observed and the measured strain—optics coefficient was found to be in agreement with reported literature.

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### OCIS Codes

[\(060.2300\)](#) Fiber optics and optical communications : Fiber measurements

[\(100.0100\)](#) Image processing : Image processing

[\(060.3735\)](#) Fiber optics and optical communications : Fiber Bragg gratings

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