

Abstract

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Magnetically Tunable Fiber Bragg Grating Supported by Guiding Mechanism System

A Bragg grating fast tunable filter prototype working over a tuning range of 62 nm has been realized. The tunable fiber Bragg grating TFBG system is achieved by varying an input current to a solenoid, resulting in an electromagnetic force, used as a strain (tension and compression) on the FBG. However, during compression, the FBG may be subject to buckling especially when the amount of compression is large. The challenge for the FBG device is therefore to design guiding system for the FBG in order to prevent the buckling. This paper presents the design of such a guiding system. These novel TFBG devices with a guiding system can have a variety of applications in optical fiber communication systems such as programmable optical add/ multiplexers (OADMs), dispersion compensators and tunable lasers.