

Application of Permanent Magnetic Powder for Magnetic Field Sensing Elements

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A multimode optical fiber with a composite polymer-magnetic coating was investigated as an optical fiber magnetic sensing element (OFMSE) for detecting external magnetic fields. The coating was formed by dispersing the magnetic powder Nd-Fe-B in poly-(ethylene-co-vinyl acetate)-EVA solution in toluene. The influence of an applied magnetic field on the change in intensity of a light signal propagated through the OFMSE constructed was investigated. In this study, the influence of the magnetic powder concentration in the composite coating on optical propagation characteristics of the modified optical fiber with the composite polymer-magnetic coating was investigated.

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