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Abstract
In this thesis, we proposed a novel optical fiber filter using a D-shaped optical fiber. Firstly, a multimode optical fiber was side polished to the core surface to form a D-shaped fiber. Secondly, a photoresist was used to form a surface Bragg grating on the core surface in terms of the holographic technology. The experiments showed that the side-polished depth of the fiber can be accurately controlled. The loss of the D-shaped fiber is less than 0.1dB, measured using loss meters. In addition, the depth and the period of the surface Bragg grating can be easily controlled in terms of an accurate rotating stage. The period and depth of the grating were measured in using of AFM technology. Finally, the transmission characteristics of the filter were measured in terms of Optical Spectral Analyzer (OSA).
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