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Paper: Bragg Gratings Written in Tapered Solid-Core Photonic Crystal Fibers

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Abstracts:

Fiber Bragg gratings (FBGs) are very useful in many applications. This is why a higher control of their properties is desirable. Therefore, a grating pre-processing technique, based on the dependence of the index guided photonic crystal fiber (IG-PCF) properties on their structural parameters, is proposed allowing a higher control of the Bragg wavelength. Using the proper combination of thermo-mechanical IG-PCFs tapering and UV photo-inscription methods, it is possible to develop new optical fiber devices. Their effectiveness is demonstrated by comparison with the results on single mode fiber (SMFs). Finally, to demonstrate the feasibility of the technique, a wideband chirped Bragg grating is fabricated.