

Synthesis of Dispersion-Compensating Triangular Lattice Index-Guiding Photonic Crystal Fibers Using the Directed Tabu Search Method

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Abstract : In this paper, triangular lattice index-guiding photonic crystal fibers (PCFs) are synthesized to compensate the chromatic dispersion of a single mode fiber (SMF-28) for an 80 km optical link operating at 1.55 μm , by using the directed tabu search algorithm. Hole-to-hole distance, circular air-hole diameter, solid-core diameter, ring number and PCF length parameters are optimized for this purpose. Three Synthesized PCFs with different physical parameters are compared in terms of their objective functions values, residual dispersions and compensation ratios.

Keywords : triangular lattice index-guiding photonic crystal fiber, dispersion compensation, directed tabu search, synthesis

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