

TRAPPING OF LIGHT IN NATURAL AND ARTIFICIAL PHOTONIC CRYSTALS AND IN HOLLOW CORE PHOTONIC CRYSTAL FIBER

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Quest for new materials in conjunction with technological advancement is an important part of intensive research and development. Truth is that the solution is embedded in natural materials. We find structural colouration in natural materials like plants and species. Some natural species possess photonic structures that produce beautiful colours and similar properties could be mimicked in artificial photonic crystals. We describe these aspects with available references and explain trapping of light in hollow core photonic crystal fibers (HCPCF). Bandgap guidance, related properties and designing various photonic structures are explained with computational photonics, and finally fabrication of HCPCF is described. CSIR-CGCRI has created a comprehensive facility to fabricate such optical fibers including nonlinear photonic crystal fiber (NPCF) for supercontinuum generation.
