Tunable photonic bandgap fiber based devices for optical networks

In future all optical networks one of the enabling technologies is tunable elements including reconfigurable routers, switches etc. Thus, the development of a technology platform that allows construction of tuning components is critical. Lately, microstructured optical fibers, filled with liquid crystals, have proven to be a candidate for such a platform. Microstructured optical fibers offer unique wave-guiding properties that are strongly related to the design of the air holes in the cladding of the fiber. These wave-guiding properties may be altered by filling the air holes with a material, for example a liquid crystal that changes optical properties when subjected to, for example, an optical or an electrical field. The utilization of these two basic properties allows design of tunable optical devices for optical networks. In this work, we focus on applications of such devices and discuss recent results.