

We construct a dimethylsulfoxide (DMSO)-based photonic crystal fiber (PCF) temperature sensor with enhanced sensitivity. A solid-core PCF with large mode area is employed to supply the in-line Mach-Zehnder interference between the fundamental and cladding modes. Thus, temperature sensing can be realized because of the shift of interference spectrum at different temperatures. The DMSO solvent is infiltrated between the main sensor and a silica tube to increase the temperature sensitivity of the sensor. The obtained sensitivity (0.315 nm/oC) is one or two orders of magnitude higher than that of previously published results. The proposed sensor is adapted for high-temperature sensing.