

Gold nanoparticles in ethanol deposited on PCF for refractive index sensors

Makram A Fakhri, Zainab H. Tawfiq, salah aldeen Adnan

ABSTRACT

This study has been included deposition of prepared the gold nanoparticles (NPs) on PCF, solutions of sucrose, NaCl and glycerol preparation for their refractive indices sensing. Synthesis of gold NPs has been accomplished by Pulsed laser ablation methodology at 532 nm and 1064 nm. While each of sucrose, NaCl and glycerol have been prepared with 10%, 20%, 30%, 40% and 50%. The etching process has been carried out after Splicing of PCF with two equal lengths of single mode fiber (SMF). Then, the gold NPs have been deposited on the etched area of PCF fiber. The free ends of SMSs where connected to 650 nm laser and optical spectrum analyser (OSA) device. The best sensitivities to the solutions refractive indices of 400.426, 397.353 and 368.852 nm/(%w/v) were obtained when the gold NPs prepared at 532 nm employed.