A tunable microresonator sensor based on a photocrosslinking polymer microwire

이성재, 윤민혁, 전상민*
포항공과대학교
(jeons@postech.ac.kr*)

A polyvinylcinnamate (PVCN) microwire was attached between the two tines of a quartz tuning fork (QTF) to form a polymer bridge. Exposure of a PVCN wire-connected QTF to ethanol vapor decreased the modulus of the wire, resulting in a decrease in the resonance frequency of QTF. The resonance frequency and Q factor of the resonator were measured as a function of the ethanol vapor concentration before and after the UV irradiation. The photocrosslinking of the PVCN wire enhanced the sensitivity of the QTF sensor and offered a facile route to developing a sensor with a tunable resonance frequency.