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Fiber optic chemical sensor using fiber coupler probe based on intensity modulation for alcohol detection

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Keywords:
 chemical sensor; fiber optic sensor; fiber coupler probe

Abstract
 A simple intensity modulation based displacement sensor using fiber optic coupler probe is proposed and demonstrated for sensing the concentration of alcohol solution. The intensity of light reduces almost linearly with the displacement and the sensitivity of the curve is dependent on the concentration of the alcohol solution. For a concentration change of methanol from 0 to 35 % in distilled water, the sensitivity is observed to be increased linearly with the concentration due to the reduction of the refractive index of the solution. The highest sensitivity is obtained at around 0.00002mV/(%). The stability, high sensitivity and simplicity of the sensor make it suitable for chemical, pharmaceutical, biomedical and process control sensing applications. © 2011 Wiley Periodicals, Inc. Microwave Opt Technol Lett, 2011; View this article online at wileyonlinelibrary.com. DOI 10.1002/mop.26124

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