Web of Science®

<< Back to results list Record 1 of 1 Record from **Web of Science®**

Design of multimode tapered fibre sensor for glucose detection

Author(s): Yasin, M (Yasin, M.)[1] ; Ahmad, H (Ahmad, H.)[2] ; Thambiratnam, K (Thambiratnam, K.)[2] ; Jasim, AA (Jasim, A. A.)[2,3] ; Phang, SW (Phang, S. W.)[4] ; Harun, SW (Harun, S. W.)[2,3]

Source: OPTOELECTRONICS AND ADVANCED MATERIALS-RAPID COMMUNICATIONS **Volume:** 7 **Issue:** 5-6 **Pages:** 371-376 **Published:** MAY-JUN 2013

Times Cited: 0 (from Web of Science)

Cited References: 10 [view related records] Citation Map

Abstract: In this paper the comparison behaviour between a tapered silica Multi-Mode Fibre (MMF) and a Plastic Multi-Mode (PMM) fibre is proposed. The tapered silica MMF (tapered core and cladding) and PMM fibre (only core) sensors use a Tunable Laser Source (TLS) at 1550 nm and a yellow He-Ne laser at 594 nm as the sources for measuring the attenuation of the input signal when the sensor is being soaked into the glucose solution. From this work, the tapered PMM fibre performs better in terms of its linearity, and provides a reliable calibration graph of glucose concentration against output signal. It has a sensitivity of 0.0088 mV/% and an error of 2.6 percent with a resolution of 0.36%. The tapered silica MMF has a better sensitivity, error and a better resolution but a lesser degree of linearity.

Accession Number: WOS:000322287800011

Document Type: Article

Language: English

Author Keywords: Tapered fibre probe; Fibre optic sensor; Glucose in deionized water

KeyWords Plus: REFRACTIVE-INDEX; WATER; MODEL

Reprint Address: Yasin, M (reprint author)
Airlangga Univ, Fac Sci & Technol, Dept Phys, Surabaya 60115, Indonesia.

Addresses:
[1] Airlangga Univ, Fac Sci & Technol, Dept Phys, Surabaya 60115, Indonesia
[2] Univ Malaya, Dept Phys, Photon Res Ctr, Fac Sci, Kuala Lumpur 50603, Malaysia
[3] Univ Malaya, Dept Elect Engn, Fac Engn, Kuala Lumpur 50603, Malaysia
[4] Univ Malaya, Dept Chem, Fac Sci, Kuala Lumpur 50603, Malaysia

E-mail Addresses: yasin@fst.unair.ac.id

Author Identifiers:

Publisher: NATL INST OPTOELECTRONICS, 1 ATOMISTILOR ST, PO BOX MG-5, BUCHAREST-MAGURELE 76900, ROMANIA

Web of Science Categories: Materials Science, Multidisciplinary; Optics

Research Areas: Materials Science; Optics

IDS Number: 189SE

ISSN: 1842-6573

<< Back to results list Record 1 of 1 Record from **Web of Science®**