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Record 1 of 1**Title:** Simultaneous measurement of aliphatic alcohol concentration and temperature based on etched taper FBG**Author(s):** Yanga, HZ (Yanga, Hang Zhou); Qiao, XG (Qiao, Xue Guang); Rajibul, IM (Rajibul, Islam Md); Lim, KS (Lim, Kok-Sing); Ahmad, H (Ahmad, Harith)**Source:** SENSORS AND ACTUATORS B-CHEMICAL **Volume:** 202 **Pages:** 959-963 **DOI:** 10.1016/j.snb.2014.06.058 **Published:** OCT 2014**Times Cited in Web of Science Core Collection:** 0**Total Times Cited:** 0**Cited Reference Count:** 20**Abstract:** A broadband fiber Bragg grating based on etch tapering is demonstrated for simultaneous sensing of aliphatic alcohol concentration and temperature. Chemical etching approach is used to produce a decaying exponential shape FBG. A reflection bandwidth of 20.08 nm is obtained when the smallest fiber radius as small as 2.2 μm is achieved. In the analysis, the bandwidth of the reflection spectrum is evaluated for measuring the refractive index whereas the wavelength shift of the resonant peak is evaluated for the temperature change. The experiment results indicate that the proposed sensor has a maximum sensitivity of 428.07 nm/RIU at the RI value of 1.3265, a temperature sensitivity of 9.9 pm/degrees C, and a bandwidth sensitivity of 0.92 pm/C-degrees is finding at methanol concentration of 10%. (C) 2014 Elsevier B.V. All rights reserved.**Accession Number:** WOS:000339994900126**Language:** English**Document Type:** Article**Author Keywords:** Etched taper FBG; Decaying exponential shape; Aliphatic alcohol concentration measurement; Temperature measurement**KeyWords Plus:** BRAGG GRATING REFRACTOMETER; OPTICAL-FIBER; AXIAL CONTRACTION; REFRACTIVE-INDEX; SENSOR; SPECTRA; DESIGN**Addresses:** [Yanga, Hang Zhou; Qiao, Xue Guang] Northwest Univ, Sch Phys, Xian 710069, Shaanxi, Peoples R China.

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Reprint Address: Yanga, HZ (reprint author), Northwest Univ, Sch Phys, Xian 710069, Shaanxi, Peoples R China.**E-mail Addresses:** yanghz@nwu.edu.cn**Publisher:** ELSEVIER SCIENCE SA**Publisher Address:** PO BOX 564, 1001 LAUSANNE, SWITZERLAND**Web of Science Categories:** Chemistry, Analytical; Electrochemistry; Instruments & Instrumentation**Research Areas:** Chemistry; Electrochemistry; Instruments & Instrumentation**IDS Number:** AM6SK**ISSN:** 0925-4005**29-char Source Abbrev.:** SENSOR ACTUAT B-CHEM**ISO Source Abbrev.:** Sens. Actuator B-Chem.**Source Item Page Count:** 5**Funding:**

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