

Wen-Kai Kuo

Professor (2011.02 – present)

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I. Educational Background:

Ph.D., Electronic Engineering

National Chiao-Tung Univ. (NCTU), Hsinchu, TAIWAN, R.O.C. (1996.09 - 2000.07)

M.S., Electronic Engineering

National Chiao-Tung Univ. (NCTU), Hsinchu, TAIWAN, R.O.C. (1990.09 - 1992.06)

B.S., Electronic Engineering

National Chiao-Tung Univ. (NCTU), Hsinchu, TAIWAN, R.O.C. (1996.09 - 2000.07)

II. Experience

1. Associate Engineer, Section Chief & Engineer, and Project Leader (1993.12 - 2001.04)
Instrument Technology Research Center, National Applied Research Laboratories, Hsinchu, TAIWAN.
2. Guest Researcher in Precision Engineering Division (1998.10 - 1999.09)
National Institute of Standard and Technology (NIST), Gaithersburg, Maryland, USA.
3. Sr. Circuit Design Engineer (2001.10 - 2002.07)
Terax Communication Co., Hsinchu, TAIWAN
4. Associate Professor (2006.08 – 2011.01), Assistant Professor (2002.08 – 2006.07),
Department of Electro-optics, National Formosa University.
5. Dean (2016.08~2018.07)
Office of International Affairs (OIA), National Formosa University.

III. Specialties.

1. Guided-mode resonance (GMR) devices.
2. Surface plasmon resonance (SPR) devices.
3. Phase measurement & interferometry.
4. Electro-optic probing.

Publications (after 2012)

1. Nabarun Saha and **W. K. Kuo***, “Guided-mode resonance-based bandpass filter operating at full conical mounting,” *Applied Optics* 59 (34) 10700~10705 (2020).
2. **W. K. Kuo***, W. S. Lin, and S. W. Yang, “Thin-film tunable bandpass filter for spectral shift detection in surface plasmon resonance sensors,” *Optics Letter* 45 (1) 65-68 (2020).
3. **W. K. Kuo***, J. Tongpakpanang, P. K. Kuo, and S. F. Kuo, “Implementation and Phase Detection of Dielectric-Grating-Coupled Surface Plasmon Resonance Sensor for Backside Incident Light,” *Optics Express* 27 (4) 3867 (2019).
4. **W. K. Kuo*** and C. J. Hsu, “Two-dimensional grating guided-mode resonance tunable filter,” *Optics Express* 25(24) 29642-29649 (2017).
5. **W. K. Kuo*** and Y. M. Chang, “Implementation of a narrowband guided-mode resonance optical filter using the multiple-mold replica method in the nanoimprinting process,” *Applied Optics*, 56, 1, pp99~104 (2017).
6. **W. K. Kuo**, S. Y. Lin, S. W. Hsu, and H. H. Yu, “Fabrication and investigation of the bionic curved visual microlens array films,” *Optical Materials*, 66, pp. 630-639 (2017)
7. **W. K. Kuo**, H. P. Weng, J. J. Hsu, H. H. Yu*, “A bioinspired color-changing polystyrene microarray as a rapid qualitative sensor for methanol and ethanol,” *Materials Chemistry and Physics*, 173, pp285~290 (2016)
8. **W. K. Kuo**, J. J. Hsu, C. K. Nien, H. H. Yu*, “Moth-Eye-Inspired Biophotonic Surfaces with Antireflective and Hydrophobic Characteristics,” *ACS Applied Materials & Interfaces*, 8(46), pp. 32021-32030 (2016)
9. **W. K. Kuo***, S. H. Syu, P. Z. Lin, and H. H. Yu, “Tunable sensitivity phase detection of transmitted-type dual-channel guided-mode resonance sensor based on phase-shift interferometry,” *Applied Optics*, 55, 4, pp903~907 (2016).
10. **W. K. Kuo**, H. P. Weng, J. J. Hsu and H. H. Yu*, “Photonic Crystal-Based Sensors for Detecting Alcohol Concentration,” *Appl. Sci.*, 6, 67 (2016)
11. **W. K. Kuo**, G. F. Kuo, S. Y. Lin and H. H. Yu*, “Fabrication and characterization of artificial miniaturized insect compound eyes for imaging,” *Bioinspir. Biomim.* 10, 056010 (2015)
12. **W. K. Kuo**, S. C. Huang, H. H. Yu*, “Preparation of carbon nanotubes as the conductive coating layer on flexible thermal-resistant substrate by permeating method and its residual stress analysis,” *Applied Physics A*, 114, pp 1167-1173, (2014).
13. **W. K. Kuo***, N. C. Huang, H. P. Weng, and H. H. Yu, “Tunable phase detection sensitivity of transmitted-type guided-mode resonance sensor in a heterodyne interferometer,” *Optics Express*,. 22, 19, 22968-22973 (2014)
14. **W. K. Kuo***, T. M. Su, Z. Y. Ke, H. C. Lin, and C. J. Wu, “Sensitivity enhancement of electro-optic polymer probing system using photo-isomerization and Fabry-Pérot effects,” *Review of Scientific Instruments*, 84, 073110 (2013)
15. **W. K. Kuo***, C. H. Chang, C. J. Wu, and H. H. Yu, “Phase-detection-sensitivity enhancement of grating-coupled surface plasmon resonance sensor with light incident at nonzero azimuth

angle,” *Journal of Nanophotonics*, 6, pp.063524-1~7, (2012)

Conference papers

1. W. K. Kuo et al., Transmitted-type Guided-mode Resonance Phase Image System for Sensing Refractive Index Distribution,” CLEO-PR 2020.
2. W. K. Kuo* et. al, “High-sensitivity phase detection of dielectric-grating-coupled surface plasmon resonance sensor for backside incident light,” PIERS 2019 Xiamen, Dec. 17-20.
3. W. S. Lin, J. Tongpakpanang and W. K. Kuo*, “Differential detection system pf spectra shift for surface plasmon resonance (SPR) sensors,” PIERS 2019 Xiamen, Dec. 17-20.
4. J. Tongpakpanang and W. K. Kuo*, “Tunable Polarization-Independence Guided-Mode Resonance Filters,” 2019 International Conference on Optical and Photonic Engineering (icOPEN 2019), Jul. 16-19.
5. W. K. Kuo* et. al, “Phase Measurement of a Transmitted-Type Guided-Mode Resonance Sensor by Using DMD-Based Digital Phase-Shift Interferometry,” 2019 International Conference on Optical and Photonic Engineering (icOPEN 2019), Jul. 16-19.
6. W. K. Kuo* et. al, “Two Phase Detection Systems of Transmitted-type Guided-mode Resonance Sensors, ” PIERS 2018 Toyama, Aug. 1 ~ 4.
7. W. K. Kuo* et. al, “Implementation of Narrowband and Tunable Guided-mode Resonance Filters Using Nanoimprinting Process.” PIERS 2018 Toyama, Aug. 1 ~ 4.
8. W. K. Kuo* et. al, “Implementation of Guided-mode Resonance Optical Filter Using Two-step Nanoimprinting Process.”, 2016 Conference on Lasers and Electro-Optics (CLEO), San Jose, Jun.
9. W. K. Kuo* et. al, “Tunable phase detection sensitivity of grating-coupled surface plasmon resonance (SPR) Sensor in a Phase-Shift Interferometry (PSI) Image System,” 2015 The 76th JSAP Autumn Meeting, Japan, Nagoya, Sept.