
BIOGRAPHICAL SKETCH

NAME in English Kou-Chen Liu	POSITION TITLE Associate Professor, Department of Electronic Engineering		
NAME in Chinese 劉國辰			
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
Chung Cheng Institute of Technology	B.S.	07/1980	Physics
Chung Cheng Institute of Technology	M.S	07/1984	Applied Physics
The University of Texas at Austin	Ph.D	04/1999	Electrical Engineering

A. Positions and Honors

Positions and Employment

- 1984-1994 Research assistant, Optics and Materials Science Research Center, Chung Shan Institute of Science and Technology
- 1998-2002 Research associate, Optics and Materials Science Research Center, Chung Shan Institute of Science and Technology
- 1997 Intern, Motorola Advance Process Research Develop Center
- 2002–2006 Assistant Professor, Chang Gung University,
- 2006–2010 Associate Professor, Chang Gung University,
- 2009 Marquis Who'sWho in the world
- 2010 Best Paper Award in APCPST & SPSM, Korea

Other Experience and Professional Memberships

- 2003-2006 Consultant, Industrial Technology research Institute
- 2008 Section Chair 6th Asain conference on Electrochemistry in Taipei
- 2008 Section Chair Electron Devices and Materials Symposia (IEDMS)
- 2009 Section Chair, International Conference on Optics and Photonics Taiwan

Honors

- 2009 Marquis Who'sWho in the world
- 2010 Best Paper Award in APCPST & SPSM, Korea

B. Selected Peer-reviewed Publications (2005-2010) (in chronological order)

- Kou-Chen Liu*, Jung-Ruey Tsai, Chi-Shiau Li, Po-Hsiu Chien, Jyun-Ning Chen, and Wen-Sheng Feng, "Characteristics of Transparent ZnO Based Thin Film Transistors with High-k Dielectric Gd₂O₃ Gate Insulators Fabricated at Room Temperature", Jpn. J. Appl. Phys., vol. 49, 04DF21 (2010) .
- Kow-Ming Chang , Wen-Hsien Tzeng a, Kou-Chen Liu ,*, Yi-Chun Chan , Chun-Chih Kuo "Investigation on the abnormal resistive switching induced by ultraviolet lightexposure based on HfOx film" Microelectronics Reliability xxx (2010) xxx–xxx
- Ting-Hsiang Huang, Zingway Pei*, Wen-Kai Lin, Shu-Tong Chang, and Kou-Chen Liu, "Oligomer semiconductor/dielectric interface modification for organic thin film transistor hysteresis reduction", Thin

Solid Films (2010, *In Press*).

4. Kou-Chen Liu*, Wen-Hsien Tzeng, and Kow-Ming Chang “The electrical characteristics of Pt/HfO_x/TiN RRAM device impact by plasma effect”, *Surf. Coat. Technol.* 2010, *In Press*
5. Kou-Chen Liu, Wen-Hsien Tzeng*, Kow-Ming Chang, Yi-Chun Chan, and Chun-Chih Kuo, “Effect of UV-light exposure to HfO_x/TiN RRAM device”, *Thin Solid Films* (2010, *In Press*).
6. Kou Chen Liu, Wen Hsien Tzeng*, Kow Ming Chang, Yi Chun Chan, Chun Chih Kuo, Chun Wen Cheng, “The resistive switching characteristics of Ti/Gd₂O₃/Pt RRAM device”, *Microelectronics Reliability*, vol. 50, pp. 670-673 (2010).
7. Kou-Chen Liu *, Hsiang-Ling Cheng, Jung-Ruey Tsai, Yi-Lin Chiang, Yu-Chen Hsieh and Der-Jun Jan “Investigation of SiO_xCy Film as Gas Permeation Barrier and Encapsulation for Full Transparent FOLED by a Permanent Helicon Plasma Source”, *Thin Solid Films* (2010, *In Press*).
8. Shou-Yi Kuo, Kou-Chen Liu, Fang-I Lai, Jui-Fu Yang, Wei-Chun Chen, Ming-Yang Hsieh, Hsin-I Lin and Woei-Tyng Lin, “Effects of RF power on the structural, optical and electrical properties of Al-doped zinc oxide films”, *Microelectronics Reliability*, vol. 50, pp. 730-733 (2010).
9. Wen-Kai Lin, Chi-Shiau Li, Jung-Ruey Tsai, Shu-Tong Chang and Kou-Chen Liu, “Room temperature fabricated transparent a-IZO based TFT using high- κ HfO₂ as gate insulator”, *Thin solid films*, (Under revise)
10. Tien-Lung Chiu, Haiqing Xianyu, Zhibing Ge, Jiun-Haw Lee, Kou-Chen Liu, and Shin-Tson Wu, “Transflective device with a transparent organic light-emitting diode and a reflective liquid-crystal device”, *Journal of the SID* 17/12, 2009
11. K.C.Liu, J.J.Luo, and L.K.Dal., “The evaluation of implanted InSb p+n diode passivated with composite anodic oxide/SiO_x stack”, *phys. Stat. Sol. (a)*, vol. 205, p.2469-2475, 2008.
12. Kou-Chen LIU, Yen-Hsun LU, Yung-Hsin LIAO, and Bor-shiun HUANG, ”Utilizing transparent ZnO thin film as permeation barrier to improve light outcoupling and longevity of top-emission polymer light-emitting devices”, *Jpn. J. Appl. Phys.* 47, No. 4, p.3162-3166, 2008.
13. Kou-Chen Liu, Chao-Wen Teng, Yen-Hsun Lu, Jiun-Hao Lee, and Lai-Cheng Chen, “Improving the performance of transparent PLEDs with LiF/Ag/ITO cathode”, *Electrochemical and Solid State Lett.*, 10(10) p.120-122, 2007.
14. SMAikap, H Y Lee, T-YWang, P-J Tzeng, C C Wang, L S Lee, K C Liu, J-R Yang and M-J Tsai, “Charge trapping characteristics of atomic-layer-deposited HfO₂ films with Al₂O₃ as a blocking oxide for high-density non-volatile memory device applications”, *Semicond. Sci. Technol.* 22, p.884–889, 2007.
15. K. C. Liu, C. W. Teng, Y. H. Lu, Y. C. Tsai, and S. H. Chou, “The Experimental Study on Transparent PLEDs Using LiF/Ag/ITO Cathode”, *Jpn. J. Appl. Phys.* 46, p.2704-2708, 2007.
16. Jiun-Haw Lee, Haiqing Xianyu, Zhibing Ge, Xinyu Zhu, Yen-Hsun Lu, Chao-Wen Teng, Kou-Chen Liu, and Shin-Tson Wu, “Hybrid Transflective Displays using Vertically Integrated Transparent OLED and Reflective LCD”, *SID DIGEST*, 3802, p.1810-1812, 2007.
17. K. C. Liu, C. W. Teng, C .C. Lee, K. Y. Cheng, Y. H. Lu, W. T. Liu, C. C. Chen, L. C. Chen, “ Experimental Study of Chemical Reaction between LiF and Polyflourene Interface during Sputtering Indium Tin Oxide (ITO) Cathode for Top Emission Polymer Light Emitting Devices”, *Jpn. J. Appl. Phys.* 45 p.3742-3745, 2006.
18. Kow-Ming Chang, Jiunn-Jye Luo, Cheng- Der Chiang and Kuo- Chen Liu, “Wet Etching Characterization of InSb for Thermal Imaging Applications”, *Jpn. J. Appl. Phys.* 45, p.1477-1482, 2006.
19. K. C. Liu , S. Maikap, C. H. Wu, Y. S. Chang, P. S. Chen, “ The impact of Hf metal predeposition on the

physical and electrical properties of ultrathin HfO₂ films on Si_{0.9954}C_{0.0046}/Si heterolayers, 20, p.1016-1021, 2005.

20. K. C. Liu, Y. S. Liu, S. Maikap and P. S. Chen, "Characteristics of ultrathin Hf-silicate gate dielectrics on Si_{0.9954}C_{0.0046}/Si heterolayers, Jpn. J. Appl. Phys. 44, p.2447-2449, 2005.

C. Research Support

Ongoing Research Support

NSC 98 - 2221 - E - 182 - 059 09/01/08-10/31/10
Using high-k dielectric layer fabrication full transparent thin-film transistor at room temperature(I)
956,000
Role: PI

NSC 99 - 2221 - E - 182 - 058 10/01/08-11/31/07
Using high-k dielectric layer fabrication full transparent thin-film transistor at room temperature
(II - III)
804,000
Role: PI

Completed Research Support (2006-2010)

NSC 97-2221-E-182 -055 08/01/08-09/31/07
A study of HfO₂ insulator prepared by Atomic Layer Deposition for nonvolatile resistance random
Role: PI

NSC 96 - 2221 - E - 182 - 051 07/01/08-08/31/07
Using atomic layer deposition to develop the OTFT with low operation voltage and low noise
applied for the glucose and ion sensor
Role: PI