

## CV (Prof. Dong-Sing Wu)

Dong-Sing Wu received the B.S., M.S., and Ph.D. degrees from National Sun Yat-Sen University, Taiwan, in 1985, 1987, and 1991, respectively, all in electrical engineering. From 1991 to 1995, he was involved in the field of integrated optics and ink-jet print heads in Industry Technology Research Institute, Taiwan. In 1995, he joined the Department of Electrical Engineering, Da-Yeh University, Taiwan, as an Associate Professor. Since 2001, he has moved to National Chung Hsing University, Taiwan, as a Full Professor with the Department of Materials Science and Engineering. He had once been the Director of Research and Development in Nano and Advanced Materials Institute funded by Innovation and Technology Commission of Hong Kong SAR Government and industrial sponsors. From October 2010 to July 2016, he was elected as the 6<sup>th</sup> and 7<sup>th</sup> President of Da-Yeh University. He is currently a distinguished professor with the Department of Materials Science and Engineering, National Chung Hsing University.

Dr. Wu was the recipient of the distinguished Research Award (in photonic field) in 2009 and the Excellent Technology Transfer Awards in 2006, 2010 and 2011 of the National Science Council of Taiwan. He received the 2015 Annual National Teacher's Award from Ministry of Education (Taiwan) and 2017 Distinguished Professor Award from Chinese Institute of Engineers. Prof. Wu has published over 260 SCI Journal papers, and 4 book chapters. He has been awarded of 40 United States patents and 105 Taiwan patents, of which, in total, 30 patents have been transferred to companies. He is the fellows of Institute of Physics (FinstP), Australian Institute of Energy (FAIE) and The Institute of Engineering (FIET). His current research interests include wide bandgap semiconductor materials and devices.

## Publications (Prof. Dong-Sing Wu)

Prof. Wu has published over 260 SCI Journal papers, over 200 International Conference Proceedings papers, and 4 Book chapters. He has been awarded of 40 United States patents and 105 Taiwan patents. All the SCI journal papers received 3254 citations with an *H index* of 29.

### A. Selected SCI Papers (2015 ~ present)

1. Ching-Ho Tien, Sin-Liang Ou, Yi OuYang, Chien-Ming Chen, and **Dong-Sing Wu**, "A Low-Temperature External Electron Retarding Electrode for Improving Vertical Green LED Performance," *IEEE Trans. Electron Devices*. (in press)
2. Ping -Chen Wu, Sin-Liang Ou, Ray-Hua Horng, and **Dong-Sing Wu**, "Enhanced Light Extraction of High-Voltage Light Emitting Diodes Using a Sidewall Chamfer Structure," *IEEE Photonics Journal*, 9 (3), 8201409 (2017).
3. Po-Jung Lin, Ching-Ho Tien, Tzu-Yu Wang, Che-Lin Chen, Sin-Liang Ou, Bu-Chin Chung, and **Dong-Sing Wu**, "On the role of AlN insertion layer in stress control of GaN on 150-mm Si (111) substrate," *Crystals*, 7(5), 134 (2017).
4. Ping-Chen Wu, Sin-Liang Ou, Ray-Hua Horng, and **Dong-Sing Wu**, "Improved Performance of High-Voltage Vertical GaN LEDs via Modification of Micro-Cell Geometry," *Appl. Sci.*, 7, 506 (2017)
5. Wu-Chang Peng, Ying-Hung Chen, Jing-Yu Chen, Ju-Liang He, **Dong-Sing Wu**, "High power impulse magnetron sputtered p-type gamma-titanium monoxide films: Effects of substrate bias and post-annealing on microstructure characteristics and optoelectrical properties," *Mater. Sci. Semicond. Process*, 61, 85-92 (2017).
6. Ching-Ho Tien, Shih-Hao Chuang, Huan-Min Lo, Stone Tasi, Chang-Lu Wu, Sin-Liang Ou, **Dong-Sing Wu**, "ITO/nano-Ag plasmonic window applied for efficiency improvement of near-ultraviolet light emitting diodes," *Phys. Status Solidi A-Appl. Mat.*, 214 (3), 1600609 (2017).
7. Ping-Chen Wu, Sin-Liang Ou, Ray-Hua Horng, and **Dong-Sing Wu**, "Improved Performance and Heat Dissipation of Flip-Chip White High Voltage Light Emitting Diodes," *IEEE Trans. Device Mater. Reliab.*, 17(1), 197-203 (2017).
8. Ray-Hua Horng, Hsu-Hung Hsueh, Sin-Liang Ou, Chi-Tsung Tsai, Tsung-Yen Tsai and **Dong-Sing Wu**, "Chemical lift-off process for nitride-LEDs from an Eco-GaN template using an AlN/strip-patterned-SiO<sub>2</sub> sacrificial layer," *Phys. Status Solidi A-Appl. Mat.*, 214 (3), 1600657 (2017).
9. Che-Chun Lin, Jung-Jie Huang, **Dong-Sing Wu**, Chao-Nan Chen, "Surface passivation property of aluminum oxide thin film on silicon substrate by liquid phase deposition," *Thin Solid Films*, 618, 118–123 (2016).
10. Tzu-Ken Lin, **Dong-Sing Wu**, Shih-Yung Huang, Wei-Kai Wang, "Characteristics of yttrium fluoride and yttrium oxide coatings for plasma process equipment prepared by atmospheric plasma spraying," *Jpn. J. Appl. Phys.*, 55, 126201 (2016).
11. Tzu-Yu Wang, Jia-Hao Liang, Guan-Wei Fua, **Dong-Sing Wu**, "Defect annihilation mechanism of AlN buffer structures with alternating high and low V/III ratios grown by MOCVD," *CrystEngComm*, 18, 9152–9159 (2016).
12. Ching-Ho Tien, Kuo-Wei Ho, Huan-Yu Chien, **Dong-Sing Wu**, Ray-Hua Horng, "Effect of the Phosphor Permanent Substrate on the Angular CCT for White Thin-Film Flip-Chip Light-Emitting Diodes," *IEEE Trans. Electron Devices*, 63(10) (2016) 3977-3982 (2016).
13. Ming-Chun Tseng, **Dong-Sing Wu**, Chi-Lu Chen, Hsin-Ying Lee, Yu-Chang Lin, Ray-Hua Horng,

- “Enhanced light extraction in wafer-bonded p-side-up thin-film AlGaInP light emitting diodes via zinc oxide nanorods,” *Opt. Mater. Express*, 10, 3293-3302 (2016).
14. Hong-Ru Liu, Sin-Liang Ou, Shih-Yin Wang, and **Dong-Sing Wu**, “On the role of diluted magnetic cobalt-doped ZnO electrodes in efficiency improvement of InGaInP light emitters,” *Appl. Phys. Lett.*, 109(2), 021110-1~021110-5 (2016).
  15. Hsu-Hung Hsueh, Sin-Liang Ou, Yu-Che Peng, Chiao-Yang Cheng, **Dong-Sing Wu**, Ray-Hua Horng, “Effect of Top-Region Area of Flat-Top Pyramid Patterned Sapphire Substrate on the Optoelectronic Performance of GaN-Based Light-Emitting Diodes,” *J. Nanomater.*, 2701028 (2016).
  16. Ming-Chun Tseng, **Dong-Sing Wu**, Chi-Lu Chen, Hsin-Ying Lee, Yu-Chang Lin, Ray-Hua Horng, “Performance comparison of p-side-up thin film AlGaInP light emitting diodes with aluminum-doped zinc oxide and indium tin oxide transparent conductive layers,” *Opt. Mater. Express*, 6(4), 1349-1357 (2016).
  17. Shui-Yang Lien, Yang-Shih Lin, Yun-Shao Cho, **Dong-Sing Wu**, “Performance of Flexible Photovoltaic Modules Encapsulated by Silicon Oxide/Organic Silicon Stacked Layers,” *IEEE Trans. Electron Devices*, 63(4), 1615-1620 (2016).
  18. Po-Jung Lina, Shih-Yung Huang, Wei-Kai Wang, Che-Lin Chen, Bu-Chin Chung, **Dong-Sing Wu**, “Controlling the stress of growing GaN on 150-mm Si (111) in an AlN/GaN strained layer superlattice,” *Appl. Surf. Sci.*, 362, 434-440 (2016).
  19. Sin-Liang Ou, Hong-Ru Liu, Shih-Yin Wang, **Dong-Sing Wu**, “Co-doped ZnO dilute magnetic semiconductor thin films by pulsed laser deposition: excellent transmittance, low resistivity and high mobility,” *J. Alloy. Compd.*, 663C, 107-115 (2016).
  20. Bing-Rui Wu, Tsung-Hsien Tsai, **Dong-Sing Wu**, “Hot-wire chemical vapor deposition of nanocrystalline silicon for ambipolar thin-film transistor applications. *Appl. Surf. Sci.*, 354, 216-220 (2015).
  21. Ray-Hua Horng, Ching-Ho Tien, Shih-Hao Chuang, Keng-Chen Liu, and **Dong-Sing Wu**, “External stress effects on the optical and electrical properties of flexible InGaIn-based green light-emitting diodes,” *Opt. Express*, 23(24), 31334-31341 (2015).
  22. Tzu-Yu Wang, Jia-Hao Liang and **Dong-Sing Wu**, “Defect formation mechanism and quality improvement of InAlN epilayers grown by metal-organic chemical vapor deposition,” *CrystEngComm*, 17(44), 8505-8511 (2015).
  23. Li-Chin Cheng, Chih-Ming Chen, Ming-Guan Chen, Chi-Chang Hu, Hsin-Yi Jiang, Ray-Hua Horng, **Dong-Sing Wu**, “A high-temperature die-bonding structure fabricated at low temperature for light-emitting diodes,” *IEEE Electron Device Lett.*, 36(8), 835-837 (2015).
  24. Hsu-Hung Hsueh, Sin-Liang Ou, **Dong-Sing Wu**, Ray-Hua Horng, “InGaIn LED fabricated on Eco-GaN template with a Ga<sub>2</sub>O<sub>3</sub> sacrificial layer for chemical lift-off application,” *Vacuum*, 118, 8-12 (2015).
  25. Ming-Chun Tseng, Ray-Hua Horng, **Dong-Sing Wu**, Shui-Yang Lien, “Silicon films deposited on flexible substrate by hot-wire chemical-vapor deposition,” *Vacuum*, 118, 109-112 (2015).
  26. **Dong-Sing Wu**, Che-Chun Lin, Chao-Nan Chen, Hong-Hsiu Lee, Jung-Jie Huang, “Properties of double-layer Al<sub>2</sub>O<sub>3</sub>/TiO<sub>2</sub> antireflection coatings by liquid phase deposition,” *Thin Solid Films*, 584, 248-252 (2015).
  27. Fei-Peng Fu, Sin-Liang Ou, and **Dong-Sing Wu**, “Pulsed laser deposition of gallium oxide films for high performance solar-blind photodetectors,” *Opt. Mater. Express*, 5(5), 1240-1249 (2015).
  28. Shih-Hao Chuang, Cheng-Sheng Tsung, Ching-Ho Chen, Sin-Liang Ou, Ray-Hua Horng, Cheng-Yi Lin, and **Dong-Sing Wu**, “Transparent conductive oxide films embedded with plasmonic nanostructure for light-emitting diode applications,” *ACS Appl. Mater. Interfaces*, 7(4), 2546-2553 (2015).

29. Shui-Yang Lien, Yun-Shao Cho, Yan Shao, Chia-Hsun Hsu, Chia-Chi Tsou, Wei Yan, Pin Han, and **Dong-Sing Wu**, "Influence of surface morphology on the effective lifetime and performance of silicon heterojunction solar cell," *Int. J. Photoenergy*, 2015, 273615 (2015).

## B. Book Chapters (4)

1. **Dong-Sing Wu\***, Ray-Hua Horng, Parvaneh Ravadgar, and Sin-Liang Ou. Effects of Annealing on Structural and Optical Properties of Single Crystalline Ga<sub>2</sub>O<sub>3</sub> Epilayers. *Physics and Mechanics of New Materials and their Applications* (ISBN: 978-1-62618-535-7). Nova Science Publisher. Jan, 2013: Chapter 2.
2. **Dong-Sing Wu\***, Chia-Cheng Wu, and Ray-Hua Horng . Metalorganic Vapor Deposition and Characterization of ZnO-Based Nanostructures and Thin Films . *Handbook of Zinc Oxide and Related Materials: Volume Two, Devices and Nano-Engineering*, (ISBN: 9781439855744). FL. USA: Taylor & Francis . Sep, 2012.
3. **Dong-Sing Wu\***, T. N. Chen, Chapter 25 "Nanoceramic Barrier Coatings for Polymer Substrates and Their Applications" In "**Handbook of Nanoceramics and Their Based Nanodevices**", Editor: Tseung-Yuen Tseng and Hari Singh Nalwa, Vol. 4, 28 pages, American Scientific Publishers (2009) (Book Chapter), ISBN 1-58883-114-0.
4. **Dong-Sing Wu\***, W. K. Wang, R. H. Horng, Chapter 12 "*III-Nitride Light-Emitting Devices on Patterned Sapphire Substrates*" In "*III-Nitride Devices and nano- Engineering*", Editor: Zhe Chuan FENG, pp. 337-362, Publisher: Imperial College Press (2007) (Book Chapter) ISBN 978-1-84816-223-5