Profile

**Center for Condensed Matter Sciences (CCMS), National Taiwan University**

Innovative Advanced Materials | Inorganic Advanced Materials Group

# Cheng-Ying Chen / Assistant Research Scholar

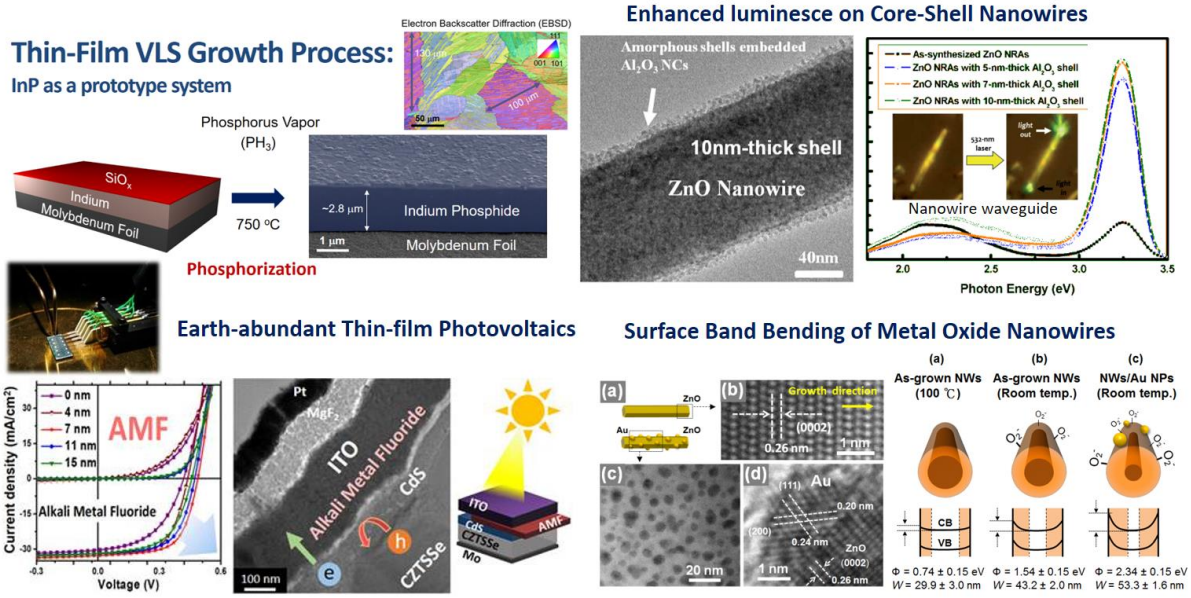
-- 2012 PhD, Institute of Photonics and Optoelectronics, National Taiwan University, Taiwan

E-mail: cychen0111@ntu.edu.tw; (chen.chengying.cyc@gmail.com)

## Advanced Materials Laboratory

### Research Focus

- Energy Materials Growth
- Semiconductor Device Physics and Technology
- Optical Spectroscopy on Energy Materials
- Photovoltaics
- Energy Harvesting

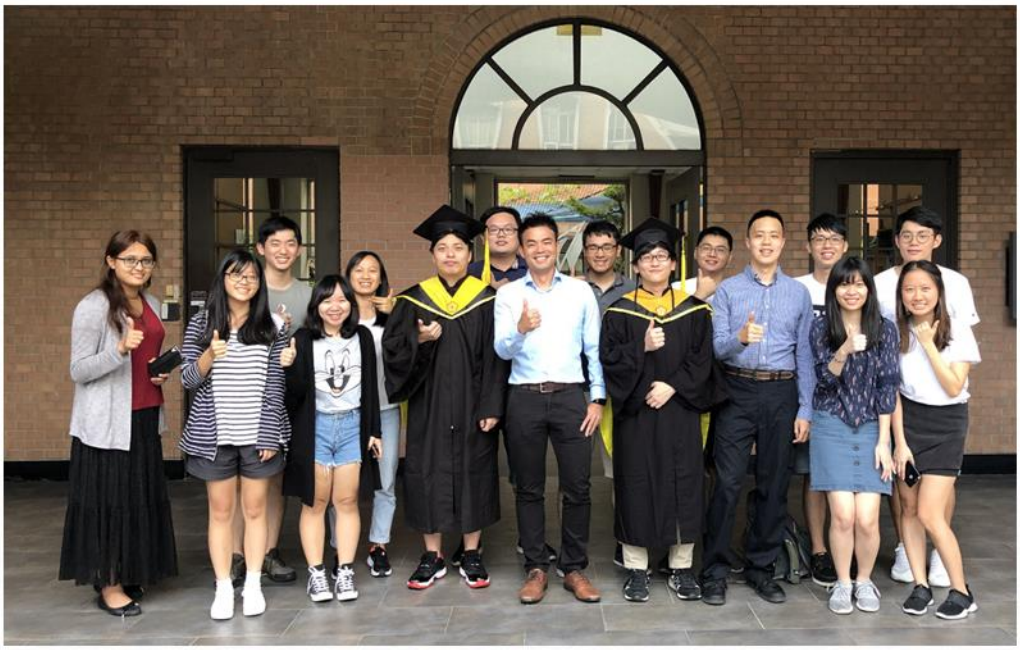



### Publications/patents/technology transfer

- Interface Engineering of CdS/CZTSSe Heterojunctions for Enhancing the $Cu_2ZnSn(S,Se)_4$ Solar Cell Efficiency", is submitted to Materials Today Energy (2019) (under revision)
- Above 10% Efficiency Earth-abundant $Cu_2ZnSn(S,Se)_4$ Solar Cells by Introducing Alkali Metal Fluoride Nanolayers as Electron-selective Contacts, Nano Energy, 51, 597-603 (2018)
- Enhanced Solar Cell Performance of $Cu_2ZnSn(S,Se)_4$ Thin Films through Structural Control by Using Multi-metallic Stacked Nanolayers and Fast Ramping Process for Sulfo-selenization, Nano Energy, 30, 762-770 (2016)
- Probing Surface Band Bending of Surface-Engineered Metal Oxide Nanowires," ACS Nano, 6, 9366-9372 (2012)
- $ZnO/Al_2O_3$ Core-Shell Nanorod Arrays: Growth, Structural Characterization, and Luminescent Property," Nanotechnology Vol. 20, 185605 (2009)

# Biography of Dr. Cheng-Ying Chen

**Cheng-Ying Chen** received the Ph.D. degree in the Graduate Institute of Photonics and Optoelectronics (GIPO) at National Taiwan University in 2012. He was a visiting scholar at Georgia Institute of Technology (USA) from 2011-2012 and a postdoctoral research fellow at University of California at Berkeley (USA) and Lawrence Berkeley National Laboratory from 2013-2014. Currently, he is an Assistant Research Scholar of Center for Condensed Matter Sciences (CCMS) at National Taiwan University. Besides, he is leading the subgroup of earth-abundant thin-film solar cells in Advanced Material Laboratory. His research interests include Energy Materials Thin-film Growth, Semiconductor Device Physics and Technology, Photovoltaics, and Energy Harvesting. His Google Scholar: http://scholar.google.com/citations?hl=en&user=y-c_CogAAAAJ



# CHENG-YING CHEN 陳政營

**Assistant Research Scholar (助理研究學者), Center for Condensed Matter Sciences (CCMS), National Taiwan University. E-mail:** cychen0111@ntu.edu.tw; (chen.chengying.cyc@gmail.com)

# List of Publication

## Book Chapter

J.R.D. Retamal, **C.Y. Chen**, K.Y. Lai and J.H. He, "ZnO-based nanostructures," Chapter 4 in Handbook of Zinc Oxide and Related Materials: Volume Two, Devices and Nano-Engineering, Taylor & Francis Group (2012)

## Selected Publications

Google Scholar citation: http://scholar.google.com/citations?hl=en&user=y-c_CogAAAAJ

**Total citations: >1643; h-index = 25; i10-index =30 (updated on Apr. 6, 2019)**

1. W.C. Chen, **C.Y. Chen**, Y.R. Lin, J.K. Chang, C.H. Chen, Y.P. Chiu, C.I Wu, K.H. Chen, and L.C. Chen, "Interface Engineering of CdS/CZTSSe Heterojunctions for Enhancing the $Cu_2ZnSn(S,Se)_4$ Solar Cell Efficiency", is submitted to ***Materials Today Energy*** **(2019) (under revision)**
2. S. Kholimatussa'diah, **C.Y. Chen***, W.C. Chen, Y.R. Lin, R.S. Chen, L.C. Chen and K.H. Chen, "The Back Contact Modification in High Efficiency $Cu_2ZnSn(S,Se)_4$ Solar Cells by a Thin $MoO_3$ Layer," *manuscript in preparation* **(2019)**
3. S. Kholimatussa'diah, **C.Y. Chen***, W. C. Chen, Y.R. Lin, K. H. Chen and L. C. Chen, "Enhanced Performance of $Cu_2ZnSn(S,Se)_4$ Photovoltaics with Introducing an Interfacial Ge Doping Layer," *manuscript in preparation* **(2019)**
4. Y.C. Tseng, **C.Y. Chen***, W.C. Chen, C.Y. Huang, J.D. Hwang, K.H. Chen, and L.C. Chen, "Earth-abundant $Cu_2ZnSn(S,Se)_4$ Solar Cells with 9.75% Efficiency by Zn(O,S)/CdS Double Buffer Layers" *manuscript in preparation* **(2019)**
5. N. Saidatin, **C.Y. Chen***, C.Y. Huang, B. S. Aprillia, R.S. Chen, J.S. Hwang, K.H. Chen, L.C. Chen, "Improved Voc Deficit in Kesterite $Cu_2ZnSn(S,Se)_4$ Solar Cells via Grain Boundary Passivation at the p-n Junction Interfaces" *manuscript in preparation* **(2019)**
6. C.Y. Huang, **C.Y. Chen***,Y.C. Chen, J.S. Hwang, K.H. Chen, and L.C. Chen, "Highly Efficient Earth-abundant CZTSSe Solar Cell by Introducing p+-CTSSe Point Contacts" *manuscript in preparation* **(2019)**
7. J.M. Chiu, I. Wahdini, Y.C. Chen, **C.Y. Chen**, C.K. Chang, Y.C. Liu, J. Sharma, Y. Tai, "The Impact of Polyvinylpyrrolidone Capping Agent on the Conductivity and Stability of Copper Nanowires Based Transparent Electrode" *manuscript in preparation* **(2019)**
8. **C.Y. Chen***, B.S. Aprillia, W.C. Chen, Y.C. Teng, C.Y. Chiu, R.S. Chen, J.S. Hwang, K.H. Chen, and L.C. Chen, "Above 10% Efficiency Earth-abundant $Cu_2ZnSn(S,Se)_4$ Solar Cells by Introducing Alkali Metal Fluoride Nanolayers as Electron-selective Contacts", ***Nano Energy*** Vol. **51**, 597-603 (2018) ***(IF: 13.120)***
9. W.C. Chen, **C.Y. Chen**, V. Tunuguntla, S.H. Lu, C. Su, C.H. Lee, K.H. Chen and L.C. Chen, "Enhanced Solar Cell Performance of $Cu_2ZnSn(S,Se)_4$ Thin Films through Structural Control by Using Multi-metallic Stacked Nanolayers and Fast Ramping Process for Sulfo-selenization" ***Nano Energy*** Vol. **30**, 762-770 (2016) ***(IF: 13.120)***

10. W.C. Chen, **C.Y. Chen**, V. Tunuguntla, S.H. Lu, C. Su, C.H. Lee, K.H. Chen and L.C. Chen, "Enhanced Solar Cell Performance of $Cu_2ZnSn(S,Se)_4$ Thin Films through Structural Control by Using Multi-metallic Stacked Nanolayers and Fast Ramping Process for Sulfo-selenization" ***Nano Energy*** Vol. **30**, 762-770 (2016) ***(IF: 13.120)***
11. W.C. Chen, V. Tunuguntla, H.W. Li, **C.Y. Chen**, S.S. Li, J.S. Hwang, C.H. Lee, L.C. Chen, K.H. Chen, "Fabrication of $Cu_2ZnSnSe_4$ Solar Cells through Multi-step Selenization of Layered Metallic Precursor Film," ***Thin Solid Films***, Vol. 618 Part A, 42-49 **(2016)** *(IF :1.92)*
12. V. Tunuguntla, W. C. Chen, T. D. Newman, **C. Y. Chen**, M. C. Hsieh, S. H. Lu, C. C Su, L. C. Chen and K. H. Chen, "Enhancement of Charge Collection at Shorter Wavelengths from Alternative CdS Deposition Conditions for High Efficiency CZTSSe Solar Cells," ***Solar Energy Materials and Solar Cells,*** Vol. 149, 49 (2016) *(IF :5.76)*
13. C.H. Ho, P. Varadhan, H.H. Wang, **C.Y. Chen**, X.S. Fang and J.H. He, "Raman selection rule for surface optical phonons in ZnS nanobelts," Raman selection rule for surface optical phonons in ZnS nanobelts," ***Nanoscale***, Vol. 8, 5954-5958 (2016) ***(IF: 6.925)***
14. H. H. Wang, J. S. Tian, **C. Y. Chen**, H. H. Huang, Y. C. Yeh, P. Y. Deng, L. Chang, Y. H. Chu, Y. R. Wu, and J. H. He, "The effect of tensile strain on optical anisotropy and exciton of m-plane ZnO," ***IEEE Photonics Journal***, Vol. 7, 6800708 (2015) ***(IF :2.32)***
15. X. Yin, C. Battaglia, Y. Lin, K. Chen, M. Hettick, M. Zheng, **C. Y. Chen**, D. Kiriya, and A. Javey, "19.2% efficient InP heterojunction solar cell with electron selective $TiO_2$ contact", ***ACS Photonics***, Vol.1, 1245–1250 (2014) *(with front cover)*
16. R. Kapadia, Z. Yu, M. Hettick, J. Xu, M. S. Zheng, **C.Y. Chen**, A. D. Balan, D. C. Chrzan, A. Javey, "Deterministic nucleation of InP on metal foils with the thin-film vapor-liquid-solid growth mode", ***Chemistry of Materials***, Vol. 26, 1340-1344 (2014). ***(IF: 9.890)***
17. J.R. D. Retamal, **C.Y. Chen**, D.H. Lien, R.S. Huang, C.A. Lin, C. P. Liu, J. H. He, "Concurrent Improvement in Photogain and Speed of a Metal Oxide Nanowire Photodetector through Enhancing Surface Band Bending via Incorporating Nanoscale Heterojunction", ***ACS Photonics*** Vol. **1**, 354-359 (2014) ***(IF: 6.880)***
18. Y.H. Hsiao, **C.Y. Chen**, L.C. Huang, G.J. Lin, D.H. Lien, J.J. Huang, and J.H. He, "Light Extraction Enhancement with Radiation Pattern Shaping of Light Emitting Diodes By Waveguiding Syringe-Like Nanorods with Optical Impedance-Matching Tapered Tips," ***Nanoscale*** Vol. **6**, 2624-2628 (2014) ***(IF: 7.233)*** *(with front cover)*
19. **C.Y. Chen**, J.R. D. Retamal, D.H. Lien, M.W. Chen, I.W. Wu, Y. Ding, Y.L. Chueh, C.I. Wu, and J.H. He, "Probing Surface Band Bending of Surface-Engineered Metal Oxide Nanowires," ***ACS Nano*** Vol. **6**, 9366-9372 (2012) ***(IF: 13.709)***
20. **C.Y. Chen**, M.W. Chen, C.Y. Hsu, D.H. Lien, M.J. Chen, and J.H. He, "Enhanced Recovery Speed of Nanostructured ZnO Photodetectors Using Nanobelt Networks," ***IEEE Journal of Selected Topics in Quantum Electronics*** Vol. **18**, 1807-1811 (2012**)** *(IF:4.078)*
21. J.M. Wu, **C.Y. Chen**, Y. Zhang, K.H. Chen, Y. Yang, Y. Hu, J.H. He, and Z.L. Wang, "Ultra-high Sensitive Piezotronic Strain Sensors Based on a $ZnSnO_3$ Nanowire/Microwire," ***ACS Nano*** Vol. **6**, 4369-4374 (2012) ***(IF: 13.709)***

22. W. Han, Y. Zhou, Y. Zhang, **C.Y. Chen**, L. Lin, X. Wang, S. Wang, Z.L. Wang, "Strain-Gated Piezotronic Transistors Based on Vertical Zinc Oxide Nanowires," ***ACS Nano*** Vol. **6**, 3760-3766 (2012) ***(IF: 13.709)***
23. **C.Y. Chen**, T.H. Liu, J. Song, Y. Zhou, Y. Zhang, Y.L. Chueh, Y.H. Chu, J.H. He, and Z.L. Wang, "Electricity generation based on vertically aligned $PbZr_{0.2}Ti_{0.8}O_3$ nanowire arrays," ***Nano Energy*** Vol. 1, 424-428 (2012) ***(IF: 13.120)***
24. **C.Y. Chen**, J.H. Huang, K.Y. Lai, Y.J. Jen, C.P. Liu, and J.H. He, "Giant Optical Anisotropy of Oblique-Aligned ZnO Nanowire Arrays," ***Optics Express*** Vol. **20**, 2015–2024 (2012) *(IF: 3.525)*
25. **C.Y. Chen**, K.Y. Lai, J.W. Lo, C.A. Lin, S.H. Chiu, Y.C. Chao and J.H. He, "Electronic Structures of Well-Aligned Er-Doped ZnO Nanorod Arrays," ***Journal of Nanoscience and Nanotechnology*** Vol. **11**, 10615-10619 (2011) (*IF:1.563*)
26. **C.Y. Chen**, J.H. Huang, J. Song, Y. Zhou, L. Lin, P.C. Huang, C.P. Liu, Y. Zhang, J.H. He, and Z.L. Wang, "Anisotropic Outputs of Nanogenerator from Oblique-aligned ZnO Nanowire Arrays," ***ACS Nano*** Vol. **5**, 6707-6713 (2011) ***(IF: 13.709)*** (featured in *VerticalNews*, Sep. 21, 2011)
27. Y.C. Chao, **C.Y. Chen**, C.A. Lin, and J.H. He, "Light Scattering by Nanostructured Antireflection Coatings," ***Energy & Environmental Science*** Vol. **4**, 3436-3441 (2011) (***IF:30.0671)*** (with back cover)
28. **C.Y. Chen**, M. W. Chen, J. J. Ke , C. A. Lin, J. R. D. Retamal, and J. H. He, "Surface Effect on Optical and Electrical Properties of ZnO Nanostructure," ***Pure and Applied Chemistry*** Vol.82, 2055-2073 (2010) (Invited review paper) *(IF: 5.294)*
29. Y.C. Chao, **C.Y. Chen**, C.A. Lin, Y.A. Dai, and J.H. He, "Antireflection effect of ZnO nanorod arrays," ***Journal of Materials Chemistry*** Vol. **20**, 8134-8138 (2010) ***(IF: 9.931)***
30. J. H. Huang, **C. Y. Chen**, Y. F. Lai, Y. I Shih, Y. C. Lin, J. H. He, and C. P. Liu, "Large-area oblique-aligned ZnO nanowires through a continuously bent columnar buffer: Growth, Microstructure, and Antireflection" ***Crystal Growth & Design*** Vol. **10**, 3297-3301 (2010) *(IF:4.558)*
31. M.W. Chen, **C.Y. Chen**, D.H. Lien, Y. Ding and J.H. He, "Photoconductive Enhancement of Single ZnO Nanowire Through Localized Schottky Effects," ***Optics Express*** Vol. **18**, 14837-14841 (2010) *(IF: 3.525)*
32. J.H. He, **C.Y. Chen**, C.H. Ho, C.W. Wang, F.H. Su, M.J. Chen, L.J. Chen, "Growth and Structural Characterization of SiGe Nanorings," ***Journal of Physical Chemistry*** **C** Vol. **114**, 5727-5731 (2010) *(IF:4.835)*
33. **C.Y. Chen**, C. A. Lin, and J. H. He, "$ZnO/Al_2O_3$ Core-Shell Nanorod Arrays: Growth, Structural Characterization, and Luminescent Property," ***Nanotechnology*** Vol. **20**, 185605 (2009) *(IF: 3.672)*
34. **C.Y. Chen**, Y.C. Wen, H.P. Chen, T.M. Liu, C.C. Pan, J.I. Chyi, and C.K. Sun, "Narrow Band Detection of Propagating Coherent Acoustic Phonons in Piezoelectric InGaN/GaN Multiple-quantum Wells," ***Applied Physics Letters*** Vol. **91**, 133101 (2007); ***Virtual Journal of Ultrafast Science***, Vol. **6** (10), October (2007). *(IF: 3.515)*
35. Y.C. Wen, **C.Y. Chen**, C.H. Shen, S. Gwo, and C.K. Sun, "Ultrafast Carrier Thermalization in InN," ***Applied Physics Letters*** Vol. **89**, 232114 (2006). *(IF: 3.515.)*

## International Conference Presentations

1. S. Quadir, **C.Y. Chen***, S. Yano, K.K. Wu, W.T. Chen, C.W. Wang, C.M. Wu, H.T. Thong, S.Y. Chen, K.H. Chen, and L.C. Chen, "A Comprehensive Study of Disorder of Kesterite Based $(Ag_xCu_{1-x})_2ZnSnSe_4$ Absorber Layers by Their Photovoltaic Performance and Neutron Diffraction Experiments", in Materials Research Society (MRS)

Spring Meeting, Phoenix, AZ, USA, CONTROL ID: 3117772 **(2019) (Accepted)**

2. C.Y. Huang, **C.Y. Chen***, Y.C. Chen, J.S. Hwang, K.H. Chen, and L.C. Chen, "Highly Efficient Earth-abundant CZTSSe Solar Cell by Introducing p+-CTSSe Point Contacts" in Materials Research Society (MRS) Spring Meeting, Phoenix, AZ, USA, CONTROL ID: 3119201 **(2019) (Accepted)**
3. **C.Y. Chen***, N. Saidatin, C.Y. Huang, B. S. Aprillia, R.S. Chen, J.S. Hwang, K.H. Chen, L.C. Chen, "Improved Voc Deficit in Kesterite $Cu_2ZnSn(S,Se)_4$ Solar Cells via Grain Boundary Passivation at the p-n Junction Interfaces", in Materials Research Society (MRS) Fall Meeting, Boston, MA, USA, CONTROL ID: 3038371 **(2018) (Oral presentation)**
4. **C.Y. Chen***, W.C. Chen, B. S. Aprillia, N. Saidatin, R.S. Chen, K.H. Chen, L.C. Chen, "Enhanced Performance of $Cu_2ZnSn(S,Se)_4$ Solar Cells with Introducing Interfacial Alkali Fluoride Layers", in Materials Research Society (MRS) Spring Meeting, Phoenix, AZ, USA, CONTROL ID: 2628181 **(2017) (Oral presentation)**
5. **C.Y. Chen***, Y.C. Teng, W.C. Chen, B. S. Aprillia, C.Y. Chiu, K.H. Chen, L.C. Chen, "Earth-abundant $Cu_2ZnSn(S,Se)_4$ Solar Cells with 9.75% Efficiency via Interface Engineering of Double Buffer Layers CdS/Zn(O,S)", in Materials Research Society (MRS) Fall Meeting, Boston, MA, USA, CONTROL ID: 2791984 **(2017)**
6. **C.Y. Chen***, B.S. Aprillia, W.C. Chen, Y.C. Teng, C.Y. Chiu, K.H. Chen, L.C. Chen, "Above 10 % Efficient Earth-abundant $Cu_2ZnSn(S,Se)_4$ Solar Cells with Introducing Alkali Metal Fluoride Electron-selective Contacts", in Materials Research Society (MRS) Fall Meeting, Boston, MA, USA, CONTROL ID: 2791971 **(2017) (Oral presentation)**
7. **C.Y. Chen***, B.S. Aprillia, W.C. Chen, Y.C. Teng, C.Y. Chiu, K.H. Chen, L.C. Chen, "Above 10 % Efficient Earth-abundant $Cu_2ZnSn(S,Se)_4$ Solar Cells with Introducing Alkali Metal Fluoride Electron-selective Contacts", in 18th International Union Materials Research Societies, International Conference in Asia (IUMRS-ICA 2017) Nov. 5-9, 2017, TWTC Nangang, Taipei, TAIWAN, Abstract Number: 0519 **(2017) (Oral presentation)**
8. C.Y. Huang, **C.Y. Chen***, W.C. Chen, S. Kholimatussa'diah, K.H. Chen, and L.C. Chen, "Earth-abundant $Cu_2ZnSn(S,Se)_4$ Solar Cells with Efficiency over 9% by Defect-controlled Engineering", in 18th International Union Materials Research Societies, International Conference in Asia (IUMRS-ICA 2017) Nov. 5-9, 2017, TWTC Nangang, Taipei, TAIWAN, Abstract Number: 0517 **(2017) The best poster award of 2017 IUMRS-ICA 指導學生:黃至揚 (B1-P09)**
9. N. Saidatin, **C.Y. Chen***, W.C. Chen, S. Kholimatussa'diah, R.S. Chen, K.H. Chen, L.C. Chen, 〞49% Performance Enhancement in Earth-abundant $Cu_2ZnSn(S,Se)_4$ Solar Cells by Back Contact Engineering," in 18th International Union Materials Research Societies, International Conference in Asia (IUMRS-ICA 2017) Nov. 5-9, 2017, TWTC Nangang, Taipei, TAIWAN, Abstract Number: 0511 **(2017)**
10. Y.C. Tseng, **C.Y. Chen***, W.C. Chen, C.Y. Chiu, J.S. Hwang, K.H. Chen, L.C. Chen, "Earth-abundant $Cu_2ZnSn(S,Se)_4$ Solar Cells with 9.75% Efficiency via Interface Engineering of CdS/Zn(O,S) Double Buffer Layers," in Taiwan Association for Coating and Thin Film Technology (TACT) International Thin film conference, Symposium A: Coatings for Sustainable Energy, Hualien, Taiwan **(2017)** Abstract Number: 0498 **Poster Presentation Award (Certificate) of TACT2017 Student Award 指導學生 Chih-Yuan Chiu 丘致遠 (A-P-498)**
11. N. Saidatin, **C.Y. Chen***, W.C. Chen, S. Kholimatussa'diah, R.S. Chen, K.H. Chen, L.C. Chen, 〞49% Performance Enhancement in Earth-abundant $Cu_2ZnSn(S,Se)_4$ Solar Cells by Back Contact Engineering," in Taiwan Association for Coating and Thin Film Technology (TACT) International Thin film conference,

Symposium A: Coatings for Sustainable Energy, Hualien, Taiwan **(2017)** Abstract Number: 0500

12. C.Y. Huang, **C.Y. Chen***, W.C. Chen, S. Kholimatussa'diah, K.H. Chen, and L.C. Chen, "Earth-abundant $Cu_2ZnSn(S,Se)_4$ Solar Cells with Efficiency over 9% by Defect-controlled Engineering", in Taiwan Association for Coating and Thin Film Technology (TACT) International Thin film conference, Symposium A: Coatings for Sustainable Energy, Hualien, Taiwan **(2017)** Abstract Number: 0499
13. **C.Y. Chen***, W. C. Chen, S. Kholimatussa'diah, Y.R. Lin, K. H. Chen and L. C. Chen, "Enhanced Performance of $Cu_2ZnSn(S,Se)_4$ Photovoltaics with Introducing an Interfacial Ge Doping Layer", in Materials Research Society (MRS) Spring Meeting, Phoenix, AZ, USA, Final ID: EE1.13.05 **(2016) (Oral presentation)**
14. **C.Y. Chen***, W.C. Chen, S. Kholimatussa'diah, Y.R. Lin, S.H. Lu, M.C. Hsieh, J.K. Chang, C.I Wu, R.S. Chen, L.C. Chen and K.H. Chen, "The Back Contact Modification in High Efficiency $Cu_2ZnSn(S,Se)_4$ Solar Cells by a Thin $MoO_3$ Layer," in Materials Research Society (MRS) Fall Meeting, Boston, MA, USA, Final ID: NN5.21 **(2015)**
15. **C.Y. Chen***, W.C. Chen, S. Kholimatussa'diah, Y.R. Lin, S.H. Lu, M.C. Hsieh, J.K. Chang, C.I Wu, R.S. Chen, L.C. Chen and K.H. Chen, "The Back Contact Modification in High Efficiency $Cu_2ZnSn(S,Se)_4$ Solar Cells by a Thin $MoO_3$ Layer," in Taiwan Association for Coating and Thin Film Technology (TACT) International Thin film conference, Symposium A: Coatings for Sustainable Energy Tainan, Taiwan **(2015) (Oral presentation)**
16. Y.C. Chao, **C.Y. Chen**, C.A. Lin, J.H. He, "Light Scattering by Nanostructured Antireflection Coatings," in *IUMRS-ICA 2011 12th International Conference in Asia*, Taipei, Taiwan. Paper Number: 0538 (2011) **(Excellent poster award)**
17. **C.Y. Chen**, C.A. Lin, and J.H. He, "$ZnO/Al_2O_3$ Core-Shell Nanorod Arrays: Processing, Structural Characterization, and Luminescent Property," in *IUMRS-ICA 2011 12th International Conference in Asia*, Taipei, Taiwan. Paper Number: 0516 (2011) **(Poster presentation)**
18. J.Y. Syu, **C.Y. Chen**, J.-H. He, "The enhanced mechanism of the $CNTs/TiO_2$ core-shell nanotubes" in *the SPIE NanoScience + Engineering*, San Diego, CA, USA. Paper Number: 8101-29 (2011)
19. **C.Y. Chen**, J.H. Huang, K.Y. Lai, Y.J. Jen, C.P. Liu, and J.H. He, "Polarization Anisotropy of Oblique-Aligned ZnO Nanowire Arrays" in *the SPIE NanoScience + Engineering*, San Diego, CA, USA. Paper Number: 8104-49 (2011) **(Poster presentation)**
20. H.H. Wang, **C.Y. Chen**, L. Hu, X. Fang and J.H. He, "Surface Optical Phonon of Single ZnS Nanobelt" in *Materials Research Society (MRS) Spring Meeting*, San Francisco, CA, USA. Paper Number: 1014260 (2011)
21. J.R.D. Retamal, **C.Y. Chen**, and J-H. He, "Surface effect of ZnO Nanostructures and its application in ultrasensitive chemical/photo/bio detection" in *World Congress on Biotechnology*, Hyderabad, India Paper Number: P0-180 (2011)
22. Y.C. Chao, **C.Y. Chen**, C.A. Lin, Y.A. Dai, and J.H. He, "ZnO Nanorod Arrays as Broadband and Omnidirectional Antireflection Coatings" in *Microoptics Conference (MOC), Hsinchu*, Taiwan. Paper Number: 00014 (2010)
23. H.H. Wang, **C.Y. Chen**, J.S. Tian, Y.C. Yeh, Y.H. Chu, L. Chang, M.J. Chen, Y.R. Wu, J.H. He, "Characterization of m-plane ZnO Thin Film on (112) $LaAlO_3$ by Pulsed Laser Deposition," in *the SPIE NanoScience + Engineering*, San Diego, CA, USA. Paper Number: 7766-2 (2010)
24. C.A. Lin, **C.Y. Chen**, J.H. He, "Significant Enhancement of Yellow-green Light Emission of ZnO Nanorod Arrays Using Ag Island Films" in *the 5th International Conference on Technological Advances of Thin Film & Surface Coatings (THIN FILMS2010)*, Harbin, China. Symp code: ONF, Paper ID:5016 (2010)
25. **C.Y. Chen**, J.H. Huang, C.P. Liu, M.J. Chen and J.H. He, "Investigation of the Carrier Recombination in Oblique-

aligned ZnO nanowire Arrays by Photoluminescence" in *the 5th International Conference on Technological Advances of Thin Film & Surface Coatings (THIN FILMS2010)*, Harbin, China. Symp code: ONF, Paper ID:5015 (2010) **(Poster presentation)**

26. **C.Y. Chen**, J.H. Huang, C.P. Liu, and J.H. He, "Polarization-dependent Photoluminescence of Oblique-aligned ZnO Nanowire Arrays" in *Materials Research Society (MRS) Spring Meeting*, San Francisco, CA, USA. Paper Number: P15.1 (2010) **(Oral presentation)**
27. M.W. Chen, **C.Y. Chen**, and J.H. He, "Photoconductive enhancement of Au nanoparticles-decorated single ZnO nanowire photodetector through formation of local schottky junction" in *International NanoElectronics Conference (INEC),* Hong-Kong, China (2010). Paper ID: heypond1, EC442
28. **C.Y. Chen**, C.A. Lin, and J.H. He, "ZnO/$Al_2O_3$ Core-Shell Nanorod Arrays: Processing, Structural Characterization, and Luminescent Property," in *International NanoElectronics Conference (INEC),* Hong-Kong, China (2010). Paper ID: jhhe2, TC411 **(Oral presentation)**
29. **C.Y. Chen**, K.T. Tsai, P.H. Chang, and J.H. He, "Electrical and Optoelectronic Characterization of a ZnO Nanowire Contacted by Focused-Ion-Beam-Deposited Pt," in *International NanoElectronics Conference (INEC),* Hong-Kong, China (2010). Paper ID: jhhe1, EC440 **(Oral presentation)**
30. **C.Y. Chen**, Y.C. Chao, C.A. Lin, J.W. Lo, and J.H. He,"Characterization of Er-doped ZnO nanorod arrays for broadband antireflection" in *International NanoElectronics Conference (INEC),* Hong-Kong, China (2010). Paper ID: jhhe4, PP411 **(Poster presentation)**
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