

Curriculum Vitae

Applicant information

Jhih-Wei Chen (陳至瑋)

Postdoctoral Fellow, Department of Physics, National Cheng Kung University, Tainan, Taiwan

Experiences and Education

Feb 2016 ~ present

Postdoctoral Fellow

Department of Physics, National Cheng Kung University, Tainan, 701, Taiwan

Principal investigator: Dr. Chia-Hao Chen (陳家浩), Prof. Chung-Lin Wu (吳忠霖)

Aug 2010 ~ Dec 2015

Ph. D. (grade average: 85.15, GPA: 4.00)

Department of Physics, National Cheng Kung University, Tainan, 701, Taiwan

Thesis title: Photoemission studies on the electronic structure modification of two-dimensional electron systems

Advisor: Dr. Chia-Hao Chen (陳家浩), Prof. Yi-Chun Chen (陳宜君)

Prof. Chung-Lin Chu (吳忠霖)

Aug 2008 ~ July 2010

M. S. (grade average: 89.20, GPA: 4.00)

Department of Physics, National Cheng Kung University, Tainan, 701, Taiwan

Thesis title: Dielectric relaxation mechanisms of mixed phase BFO films

Advisor: Prof. Yi-Chun Chen (陳宜君)

Aug 2004 ~ July 2008

B. S. (grade average: 84.88, GPA: 4.00)

Department of Electronic Engineering, Chung Yuan Christian University, Taoyuan, 30223, Taiwan

Research interests

2D Electronics, 2D Materials, Hetero-Interfaces, Carbon-Based Energy Storage, Multiferroic Oxides, Topological insulator, Rashba Semiconductors, Condensed Matter Physics, Surface Science

Research techniques

Angle-Resolved Photoemission Spectroscopy (ARPES), Scanning Photoelectron Micro-Spectroscopy (SPEM), X-ray Photoemission Spectroscopy (XPS), Raman Spectroscopy, Scanning Probe Microscopy (SPM), Electrochemical Impedance Spectroscopy (EIS)

Publications

a) *Journal Papers* (total citations = >314, i10 = 8 and h-index = 9, updated on April. 23th, 2019)

1. M. -Y. Kuo, C. -F. Hsiao, Y. -H. Hsiao, T. -H. Lai, M. -J. Fang, J. -Y. Wu, **J. -W. Chen**, C. -L. Wu, K. -H. Wei, H. -C. Lin and Y. -J. Hsu, "Au@Cu₂O core@shell nanocrystals as dual-functional catalysts for sustainable environmental applications", *Applied Catalysis B: Environmental* 242, 499 (2019)

(*N/M*=7.88%, *IF*= 11.698)

2. Kok-Hong Tan, Yun-Wen Chen, Chien-Nguyen Van, **Jhih-Wei Chen**, Fang-Sheng Lim, Khian-Hooi Chew, Chung-Lin Wu, Siang-Piao Chai, Ying-Hao Chu, Wei-Sea Chang, “Energy Band Gap Modulation in Nd-doped BiFeO₃/SrRuO₃ Heteroepitaxial for Visible Light Photoelectrochemical Activity”, *ACS Applied Materials & Interfaces* 11(1), 1655-1664 (2019) (*N/M*=8.95%, *IF*= 8.097)
3. **J. W. Chen**, S. -T. Lo, S. -H. Ho, S. -S. Wong, T. -H. Y. Vu, X. -Q. Zhang, Y. -D. Liu, Y. -Y. Chiou, Y. -X. Chen, J. -C. Yang, Y. -C. Chen, Y. -H. Chu, Y. -H. Lee, C. -J. Chung, T. -M. Chen, C. H. Chen and C. -L. Wu, “A Gate-free Monolayer WSe₂ *p-n* diode”, *Nature Communications* 9, 3143 (2018) (*N/M*=4.68%, *IF*= 12.353)
4. L. T. Quynh, C. N. Van, W. Y. Tzeng, C. W. Huang, Y. H. Lai, **J. W. Chen**, K. A. Tsai, C. L. Wu, W. W. Wu, C. W. Luo, Y. J. Hsu and Y. H. Chu, “Flexible Heteroepitaxy Photoelectrode for Photoelectrochemical Water Splitting”, *ACS Appl. Energy Mater.* 1(8), 3900 (2018) (*New Journal*)
5. W. -T. Wang, J. Sharma, **J. -W. Chen**, C. -H. Kao, S. -Y. Chen, C. -H. Chen, Y. -C. Feng and Y. Tai, “Nanoparticle-induced fast nucleation of pinhole-free PbI₂ film for ambient”, *Nano Energy* 49, 109 (2018). (*N/M*=5.44%, *IF*= 12.343)
6. Q. Zhang, W. -T. Wang, C. -Y. Chi, Tobias Wachter, **J. -W. Chen**, C. -Y. Tsai, Y. -C. Huang, Michael Zharnikov, Y. Tian and D. -J. Liaw, “Toward a universal polymeric material for electrode buffer layers in organic and perovskite solar cell and organic light-emitting diode”, *Energy & Environmental Science* 11, 682 (2018). (*N/M*=1.80%, *IF*= 29.518)
7. K. -H. Tan, H. -W. Lee, **J. -W. Chen**, C. -F. Dee, B. -Y. Majlis, A. -K. Soh, C. -L. Wu, S. -P. Chai and W. -S. Chang, “Self-assembled heteroepitaxial AuNPs/SrTiO₃: Influence of AuNPs size on SrTiO₃ band gap tuning for visible light-driven photocatalyst”, *Journal of Physical Chemistry C* 121 (25), 13487 (2017). (*N/M*=15.63%, *IF*= 4.536)
8. S. -J. Tsai, C. -Y. Lin, C. -L. Wang, **J. -W. Chen**, C. -H. Chen and C. -L. Wu, “Efficient coupling of lateral force in GaN nanorod piezoelectric nanogenerators by vertically integrated pyramided Si substrate”, *Nano Energy* 37, 260 (2017). (*N/M*=5.44%, *IF*= 12.343)
9. Chien Nguyen Van, Thi Hien Do, **Jhih-Wei Chen**, Wen-Yen Tzeng, Kai-An Tsai, Haili Song, Heng-Jui Liu, Yan-Cheng Lin, Yi-Chun Chen, Chung-Lin Wu, Chih-Wei Luo, Wu-Ching Chou, Rong Huang, Yung-Jung Hsu and Ying-Hao Chu, “WO₃ mesocrystal-assisted photoelectrochemical activity of BiVO₄”, *NPG Asia Materials* 9(3), e357 (2017). (*N/M*=6.18%, *IF*= 9.029)
10. **J. W. Chen**, H. C. Huang, Camilla Coletti, D. Convertino, L. Y. Chang, H. W. Shiu, C. M. Cheng, M. F. Lin, Stefan Heun, Forest C. -S. Chien, Y. C. Chen, C. H. Chen and C. L. Wu, “Efficient n-type doping in Epitaxial Graphene through Titanium-induced lateral coupling”, *Carbon* 109, 300 (2016). (*N/M*=11.6%, *IF*= 6.337)
11. T. H. Do, C. N. Van, K. A. Tsai, L. T. Quynh, **J. W. Chen**, Y. C. Lin, Y. C. Chen, W. C. Chou, C. L. Wu, Y. J. Hsu and Y. H. Chu, “Superior photoelectrochemical activity of self-assembled NiWO₄/WO₃ heteroepitaxy”, *Nano Energy* 23, 153 (2016). (*N/M*=5.44%, *IF*=12.343)
12. L. T. Quynh, C. N. Van, Y. Bitla, **J. W. Chen**, D. T. Hien, W. Y. Tseng, S. C. Liao, K. A. Tsai, Y. C. Chen, C. L. Wu, C. H. Lai, C. W. Luo, Y. J. Hsu and Y. H. Chu, “Self-assembled BiFeO₃/ ϵ -Fe₂O₃ vertical heteroepitaxy for visible light photoelectrochemistry”, *Adv. Energy Mater.* 6, 1600686 (2016) (*N/M*=3.4%, *IF*= 16.721)
13. Shu-Ju Tsai, Chiang-Lun Wang, Hung-Chun Lee, Chun-Yeh Lin, **Jhih-Wei Chen**, Hong-Wei Shiu, Lo-Yueh Chang, Han-Ting Hsueh, Hung-Ying Chen, Jyun-Yu Tsai, Ying-Hsin Lu, Ting-Chang Chang, Li-Wei Tu, Hsisheng Teng, Yi-Chun Chen, Chia-Hao Chen and Chung-Lin Wu, “Approaching Defect-free Amorphous Silicon Nitride by Plasma-assisted Atomic Beam Deposition for High Performance Gate Dielectric”, *Sci. Rep.* 6, 28326 (2016). (*N/M*=15.6%, *IF*= 4.259)
14. Yen-Lin Huang, Wei Sea Chang, Chien Nguyen Van, Heng-Jui Liu, Kai-An Tsai, **Jhih-Wei Chen**, Ho-Hung Kuo, Wen-Yen Tzeng, Yi-Chun Chen, Chung-Lin Wu, Chih-Wei Luo, Yung-Jung Hsu and Ying-

- Hao Chu, "Tunable photoelectrochemical performance of Au/BiFeO₃ heterostructure", *Nanoscale* 8, 15795 (2016). (*N/M*=8.8%, *IF*= 7.367)
15. N. V. Chien, W. S. Chang, **J. W. Chen**, K. A. Tasi, W. Y. Tzeng, Y. C. Lin, H. H. Kuo, H. J. Liu, K. D. Chang, W. C. Chou, C. L. Wu, Y. C. Chen, C. W. Luo, Y. J. Hsu and Y. H. Chu, "Heteroepitaxial approach to explore charge dynamics across Au-BiVO₄ interface for photoactivity enhancement", *Nano Energy* 15, 625 (2015). (*N/M*=5.5%, *IF*= 11.553)
 16. Chiang-Lun Wang, Shu-Ju Tsai, **Jhih-Wei Chen**, Hong-Wei Shiu, Lo-Yueh Chang, Kai-Hsiang Lin, Hsu-Cheng Hsu, Yi-Chun Chen, Chia-Hao Chen and Chung-Lin Wu, "Imaging and Characterization of Piezoelectric Potential in a Single Bent ZnO Microwire", *Appl. Phys. Lett.* 105, 123115 (2014). (*N/M*=14.5%, *IF*= 3.302)
 17. W. S. Chang, H. J. Liu, V. T. Tra, **J. W. Chen**, T. C. Wei, W. Y. Tzeng, Y. M. Zhu, H. H. Kuo, Y. H. Hsieh, Q. Zhan, C. W. Luo, J. Y. Lin, J. H. He, C. L. Wu and Y. H. Chu, "Tuning the electronic transport in a self-assembled nanocomposite", *ACS Nano* 8(6), 6242 (2014). (*N/M*=3.84%, *IF*= 12.881)
 18. Han-Ting Hsueh, Yung-Hsiang Chen, Yu-De Lin, Kuang-Chieh Lai, **Jhih-Wei Chen** and Chung-Lin Wu, "Integration of flower-like ZnO nanostructures with crystalline-Si interdigitated back contact photovoltaic cell as a self-powered humidity sensor", *Appl. Phys. Lett.* 103, 213109 (2013). (*N/M*=14.7% , *IF*= 3.515)
 19. T. V. Thanh, **J. W. Chen**, P. C. Huang, B. C. Huang, Y. Cao, C. H. Yeh, H. J. Liu, E. A. Eliseev, A. N. Morozovska, J. Y. Lin, Y. C. Chen, M. W. Chu, P. W. Chiu, Y. P. Chiu, L. Q. Chen, Chung-Lin Wu and Y. H. Chu, "Ferroelectric control of the conduction at the LaAlO₃/SrTiO₃ hetero-interface", *Adv. Mater.* 25, 3357 (2013). (*N/M*=2.3%, *IF*= 15.409)
 20. **Jhih-Wei Chen**, Chiang-Lun Wang, Hung Wei Shiu, Chi-Yuan Lin, Chen-Shiung Chang, Forest Shih-Sen Chien, Chia-Hao Chen, Yi-Chun Chen and Chung-Lin Wu, "Graphene on Au-coated SiOx substrate: Its core-level photoelectron micro-spectroscopy study", *Appl. Phys. Express* 5, 085101 (2012 selected as a SPOTLIGHTS paper). (*N/M*=17.9%, *IF*= 2.731)
 21. Y. C. Chen, Q. He, F. N. Chu, Y. C. Huang, **J. W. Chen**, W. I. Liang, R. K. Vasudevan, V. Nagarajan, E. Arenholz, S. V. Kalinin and Y. H. Chu, "Electrical control of multiferroic ordering in mixed-phase BiFeO₃ films", *Adv. Mater.* 24, 3070-3075 (2012). (*N/M*=2.34%, *IF*= 14.829)
 22. Yi-Chun Chen, Guang-Fu Wang, Hsiang-Hua Tai, **Jhih-Wei Chen**, Yen-Chin Huang, Jan-Chi Yang and Ying-Hao Chu, "Non-volatile domain nucleation and growth in multiferroic BiFeO₃ films", *Nanotechnology* 22, 204030 (2011). (*N/M*=12.8%, *IF*= 3.979)

b) Under preparation

1. **J. -W. Chen**, H. -C. Huang, Camilla Coletti, L. -Y. Chang, H. -W. Shiu, M. -F. Lin, Stefan Heun, Forest Shih-Sen Chien, Y. -C. Chen, C. -H. Chen and C. -L. Wu, "Direct evidence of Dissociation Hydrogen molecules adsorption through spillover effect by Ti catalyst", **to be submitted**
2. **J. -W. Chen**, C. -L. Wang, Camilla Coletti, D. Convertino, L. -Y. Chang, C. -H. Chen and C. -L. Wu, "Patterned of lateral *p-n* homojunction in epitaxial graphene by local-anode oxidation", **to be submitted**
3. **Jhih-Wei Chen**, C. -N. Kuo, W. -C. Chen, C. M. Cheng, C. -S. Lue, T. -R. Chang, C.-H. Chen and C. -L. Wu, "Discovery of topological surface states in PdTe₂ electronic structure", **to be submitted**
4. **Jhih-Wei Chen**, Y. -D. Liu, J. -M. Yang, T. -M. Chen, J. -C. Yang, Y. -C. Chen and Y. -H. Chu, "Phase transition revealed by impedance spectroscopy in Mixed phased BiFeO₃ thin film", **to be submitted**

Book Chapter

1. 2019 年 03 月物理雙月刊-成大物理與同步輻射研究團隊發現了具有異質二極體特性的二維材料 WSe₂ (成大物理系陳至瑋撰)
2. 2019 年 03 月物理雙月刊-超越摩爾定律的二維電子元件(成大物理陳至瑋、同步輻射陳家浩與成大物理吳忠霖撰)
3. 國家同步輻射研究中心第 106 簡訊-非揮發性 WSe₂ *pn* 二極體
4. 國家同步輻射研究中心第 101 簡訊-以鈦原子電子軌域混成所產生之高效能 n 型石墨烯摻雜
5. Jhih-Wei Chen et al., Spatially/Angle-Resolved Photoemission Studies on the Electronic Structure of Two-Dimensional Electron System, Taiwan Vacuum Society (台灣真空科技), 30(3), 2017 (In Press)
6. 陳至瑋, 楊凱閔, 林秉謙, 唐振育, 唐健彬, 張嘉允(摘譯), “New Directions in Liquid Crystal Science (液晶科學新方向)”, R.O.C. Taiwan Liquid Crystal Society (中國液態晶體學會簡訊), 第一期, 2007 (民國 96 年 6 月).

Academic Awards

1. 中華民國科技部 107 年度博士後研究員學術著作獎(“非揮發性 WSe₂ *pn* 二極體”)
2. 2019 Best Oral Presentation Award of Physical Society of R.O.C. (中華民國物理學會 A3 組第一名)
3. 2018 Best Thesis Award of Physical Society of R.O.C. (中華民國物理學會博士生優良論文獎)
4. National Synchrotron Radiation Research Center PhD. scholarship, Aug 2014 ~ Aug 2015
5. National Synchrotron Radiation Research Center PhD. scholarship, Aug 2012 ~ Aug 2013
6. Hsin-Chu decoration union scholarship, 2006
7. J. -W. Chen et al., “Efficient n-type doping in Epitaxial Graphene through strong lateral orbital hybridization of Ti adsorbate”, Oral Presentation Award in 2016 Twentieth User’s Meeting & Workshop, Hsin-Chu, Taiwan.
8. J. -W. Chen et al., “Ferroelectric Control of conduction at LAO/STO hetero-interface”, Oral Presentation Award in 2013 Twentieth User’s Meeting & Workshop., Hsin-Chu, Taiwan.

Invited talks and International Conference Presentations

Invited Talks

1. Jhih-Wei Chen¹ et al., “A Gate-free Monolayer WSe₂ *p-n* Diode”, **Invited Talk** at NSRRC Lunch Seminar, Hsin-Chu, Taiwan, 2018.
2. Jhih-Wei Chen¹ et al., “Visualizing Band Structure using Spatially/Angle-Resolved Photoemission Spectroscopy: Cases in Low-dimensional Systems”, **Invited Talk** at Department of Physics, NCHU Seminar, Taichung, Taiwan, 2017.
3. Jhih-Wei Chen¹ et al., “Visualizing Electronic Structure using Spatially/Angle-Resolved Photoemission Spectroscopy: Cases in Low-dimensional Systems”, **Invited Talk** at Taiwan Oxide Forum, 2017.
4. Jhih-Wei Chen¹ et al., “Efficient n-type doping in epitaxial graphene through strong lateral orbital hybridization of Ti adsorbate”, **Invited Talk** at NSRRC Lunch Seminar, Hsin-Chu, Taiwan, 2016.

International Conference Presentations

1. Jhih-Wei Chen et al., “A Gate-Free Monolayer WSe₂ *pn* Diode”, Annual of Physical Society of ROC. (2019) (Oral Presentation)
2. Jhih-Wei Chen et al., “A Gate-Free Monolayer WSe₂ *pn* Diode”, Twenty-fourth User’s Meeting & Workshop. (2018) (Poster Presentation)

3. Jhih-Wei Chen et al., “Direct evidence of Dissociation Hydrogen Molecules Adsorption Through Spillover effect by Ti catalyst”, Annual of Physical Society of ROC. (2018) (Oral Presentation)
4. Jhih-Wei Chen¹, Chia-Hao Chen², and Chung-Lin Wu¹, “Visualizing Electronic Structure using Spatially/Angle-Resolved Photoemission Spectroscopy: Cases in Low-dimensional Systems”, Taiwan Oxide Forum. (2017) (Oral Presentation)
5. Jhih-Wei Chen¹, Chia-Hao Chen², and Chung-Lin Wu¹, “Visualizing Electronic structure using Spatially/Angle-Resolved Photoemission Spectroscopy: Cases in Low-dimensional Systems”, Twenty-third User’s Meeting & Workshop. (2017)
6. Jhih-Wei Chen et al., “Gate free WSe₂ *pn* homojunction”, Twenty-third User’s Meeting & Workshop. (2017) (Poster Presentation)
7. Y. -X. Chen^{1,2}, L. -Y. Chang², J. -W. Chen³, Y. -C. Kuo², J. -Y. Juang¹, and C. -H. Chen², “n-Alkanethiols Directly Grown on Bare Si (111) Surface: from disordered to ordered transition”, 35th Spectroscopy and Surface Science Symposium of Taiwan. (2017) (Poster Presentation)
8. Jhih-Wei Chen et al., “Efficient n-type doping in Epitaxial Graphene through strong lateral orbital hybridization of Ti adsorbate”, 9th International Conference on materials for Advanced Tehnologies. (2017) (Poster Presentation)
9. Jhih-Wei Chen et al., “Efficient n-type doping in Epitaxial Graphene through strong lateral orbital hybridization of Ti adsorbate”, Twenty-second User’s Meeting & Workshop. (2016) (Oral Presentation)
10. Jhih-Wei Chen et al., “Efficient n-type doping in Epitaxial Graphene through strong lateral orbital hybridization of Ti adsorbate”, Twenty-first User’s Meeting & Workshop. (2015) (Oral Presentation)
11. Jhih-Wei Chen et al., “Dirac Velocity Modification On Epitaxial Graphene”, Annual of Physical Society of ROC. (2015) (Oral Presentation)
12. H. W. Shiu¹, L. Y. Chang^{1,2}, H. Y. Chen², J. W. Chen³, C. L. Wu³, S. Gwo^{1,2}, C. H. Chen¹, “Is silicon essential to make graphene visible? Case studies of graphene-substrate interaction”, Annual of Physical Society of ROC. (2015)
13. Jhih-Wei Chen et al., “Modification of Fermi Velocity of Epitaxial Graphene”, Twentieth User’s Meeting & Workshop. (2014) (Poster Presentation)
14. Jhih-Wei Chen et al., “Ferroelectric Control of conduction at LAO/STO hetero-interface”, Nineteen User’s Meeting & Workshop. (2013) (Oral Presentation)
15. Jhih-Wei Chen et al., “Photoemission spectroscopic study of the local conduction in the BFO-CFO composites”, Annual of Physical Society of ROC. (2013) (Oral Presentation)
16. Jhih-Wei Chen et al., “Nonvolatile control of conduction at LAO/STO heterointerfaces”, Niigata Graduate Research Forum. (2013) (Oral Presentation)
17. Jhih-Wei Chen et al., “Nonvolatile control of conduction at LAO/STO heterointerfaces”, Eighteenth User’s Meeting & Workshop. (2012) (Oral Presentation)
18. Jhih-Wei Chen et al., “Study of the ferroelectric-tunable electronic structures at the LAO/STO Heterointerfaces by photoelectron spectroscopy”, MMA 2012, Taipei, Taiwan. (2012) (Oral Presentation)
19. Jhih-Wei Chen et al., “Nonvolatile Ferroelectric Control of Electronic Structure at LAO/STO Heterointerface”, KJT Meeting 2012, Kaoshiung, Taiwan. (2012) (Oral Presentation)
20. Jhih-Wei Chen et al., “Nonvolatile Ferroelectric Manipulation of Electronic Structure at LAO/STO Heterointerface”, APS March Meeting 2012, Boston, USA. (2012) (Oral Presentation)
21. Jhih-Wei Chen et al., “Controlling Band Structure at LAO/STO Heterointerface by tuning polarization fields”, Annual of Physical Society of ROC. (2012) (Oral Presentation)
22. Jhih-Wei Chen¹ et al., “Nonvolatile Ferroelectric Control of Band Structure at LAO/STO Heterointerface”, Seventeenth User’s Meeting & Workshop. (2011) (Poster Presentation)

23. Jhih-Wei Chen et al., "Study of "Field-Dependent interface barriers in highly-strained BFO", APS March meeting 2011, Dallas, USA. (2011) (Oral Presentation)
24. Jhih-Wei Chen et al., "Field-Dependent Phase couplings in mixed-phase BFO", Annual of Physical Society of ROC. (2011) (Oral Presentation)
25. Jhih-Wei Chen et al., "Dielectric relaxation mechanism of mixed-phase BFO films", Annual of Physical Society of ROC. (2010) (Oral Presentation)
26. 陳至瑋, 王俊才, 張曉芬, 李偉, "膽固醇液晶/奈米碳管之形變探討與在不同驅動電壓波形下的影響", Optic & Photonics Taiwan, International Conference (台灣光電科技研討會發表論文). (2007) (Poster Presentation)