

Fang-Chung Chen

Professor

Vice Chairman

Department of Photonics

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Personal Website: <https://fc-richard-chen.github.io/cv/>

CURRICULUM VITAE

Education

PhD

06/2000 ~ 09/2003

Materials Science & Engineering, Major in Electronic Materials and Devices

University of California, Los Angeles, USA

Advisor: Prof. Yang Yang

Thesis Title: High Performance Polymer Light-Emitting and Light-Harvesting Devices

Master of Science

09/1996 ~ 06/1998

Chemistry, National Taiwan University, Taiwan

Advisor: Prof. Yuhlong Oliver Su

Thesis Title: Electrochemical and Spectral Characterization of High-Valent Metal-Porphyrins

Bachelors of Science

09/1992 ~ 06/1996

Chemistry, National Taiwan University, Taiwan

Professional Experience

Vice Chairman of Department of Photonics (Aug. 2018 - present)

Description of Duties

- (a) responsible for the daily operation of the graduate programs (PhD and master) of the department;
- (b) long-term planning for the graduate programs (PhD and master) of the department;
- (c) provide recommendations for tenure, promotion, and termination;
- (d) recruit new faculty members;
- (e) review and determine faculty members to be forwarded to the College Dean for teaching and research awards;
- (f) budgeting and resource management;
- (g) coordinate departmental activities;
- (h) college-level committee of faculty promotion and hiring;
- (i) other daily departmental serves.

Professor (Aug. 2012 - present)

Department of Photonics and Display Institute

National Yang Ming Chiao Tung University/National Chiao Tung University

Description of Duties (other than teaching and research duties)

- (a) committee of faculty promotion and hiring (Aug. 2012 - present);
- (b) chairman of the departmental committee for budget and space (Aug. 2016 – July 2018);
- (c) committee of academic programs in the department;
- (d) other departmental servers.

Associate Professor (Aug. 2008 – July 2012)

Assistant Professor (Feb. 2004 – July 2008)

Department of Photonics and Display Institute

National Chiao Tung University

Research focuses are: (a) Organic-Inorganic hybrid perovskite electronics, including photovoltaic devices, light-emitting devices, lasers and others; (b) Polymer LEDs with emphasis on triplet emitters, polarized emission, flexible LEDs and related device physics, photochemistry and photophysics; (c) Organic FETs; (d) Photovoltaic devices and related green energy technologies; (e) Polymer photosensors with emphasis on near-infrared photodetections; (f) Polymer microlens fabrication and applications; (g) other flexible electronics, such as flexible waveguiding photovoltaics and luminescent solar cells.

Chairman (Aug. 2009 – July 2011)

Vice Chairman (Feb. 2009 – Aug. 2009)

Degree Program of Flat Panel Display Technology, National Chiao Tung University

Description of Duties

- (a) responsible for the daily operation of the degree program;
- (b) long-term planning for the degree program;
- (c) managed budget and resource of the degree program;
- (d) coordinated the activities of the degree program;
- (e) other serves for the degree program.

Post-Doctoral Follower

Organic Electronic Materials and Devices (Oct. 2003 - Dec. 2003)

University of California, Los Angeles,

Department of Materials Science & Engineering

Major Achievements:

- (a) improved the efficiency of plastic photovoltaic cells;
- (b) demonstrated high performance organic thin-film transistors with nano-composition dielectrics;
- (c) demonstrated polymer temperature sensor integrated with Reconfigurable Fabric.

Graduate Student Researcher

Organic Electronic Materials and Devices (June 2000 – Sep. 2003)

University of California, Los Angeles,

Department of Materials Science & Engineering

Research focus on organic electronics and displays with emphasis on high performance OLEDs and solar

cells.

Major Achievements:

- (a) initiated a research project of polymer photovoltaic devices in Yang's lab;
- (b) demonstrated highly efficient plastic photovoltaic cells;
- (c) demonstrated the first phosphorescent light-emitting electrochemical cell in the world;
- (d) demonstrated highly efficient phosphorescent PLEDs (among the highest efficient polymer devices);
- (e) synthesis of very high purity semiconducting polymer and organic molecules;
- (f) setup organic electronics lab, including device fabrication and characterization instruments.

Visiting Graduate Student

Organic Molecular Electronics (Feb. 2002)

Prof. Kido's lab, Yamagata University, Japan

- (a) synthesis and purification of molecules and polymers;
- (b) deposition of small molecular thin films;
- (c) characterization of organic electronics;
- (d) encapsulation of organic devices.

Graduate Student Teaching Assistant (Oct. 1999 – June 2000)

University of Southern California, Department of Materials Science and Engineering, USA

- (a) tutoring students in Fundamentals of Materials Science;
- (b) homework correction;

Full-Time Teaching Assistant (Aug. 1998 – July 1999)

National Taiwan University, Department of Chemistry, Taiwan

- (a) instructed students in analytical and organic synthesis laboratory of chemistry;
- (b) successful demonstration of the first stable electrogenerated chemiluminescence of organic compounds in water.

Teaching Courses

1. Chemistry (I) (2005 - present)
2. Organic Electronics and Optoelectronics (2004 - present)
3. Materials and Fabrication Processes of Displays (2005 - 2016)
4. Introduction to Display Technologies (Organic Light-Emitting Diodes and Display Applications) (2004 - present)
5. Colloquium for graduate students (Aug. 2018 - present)

Professional Activities

Honors and Awards

1. Fellow of the Royal Society of Chemistry (FRSC) (2021)
2. 2020 Y. Z. Hsu Scientific Paper Award
3. 2020 The Most Potential IoT Innovation Award, Pen Wen Yuan Foundation
4. 2019 Volunteer Service Awards - The EITA Hall of Fame
5. 2012-2015 Project for Excellent Junior Research Investigators, Ministry of Science and Technology
6. 2008 Academic Sinica : Award for Junior Research Investigators
7. The UCLA Henry Samueli School of Engineering and Applied Science 2002-2003 Awards: Outstanding Doctor of Philosophy in Materials Science and Engineering.

Invited Talks

International Conference/Workshop

1. International Conference on Emergent Functional Matter Science 2019, (Hsinchu, Taiwan, Dec. 2019).
2. Optics & Photonics Taiwan, International Conference (OPTIC 2019), (Taichung, Taiwan, Dec. 2019).
3. The 5th International Conference on Advanced Electromaterials (ICAE 2019), (Jeju, Korea, Nov. 2019).
4. The 7th RIKEN-NCTU Symposium on Physical and Chemical Sciences, (Hsinchu, Taiwan, Oct. 2019).
5. 2019 Collaborative Conference on Materials Research (CCMR), (Gyeonggi Goyang/Seoul, South Korea, June 2019).
6. 14th IUPAC International Conference on Novel Materials and their Synthesis (NMS-XIV) (Guangzhou, China, Oct. 2018)
7. Taiwan-Japan-US Joint Workshop on Energy Materials for Sustainable Development (Sep. 2018)
8. The 27th International Conference on Amorphous and Nanocrystalline Semiconductors (Seoul, Korea, Aug. 2017).
9. The EITA Conference on New Materials, Nanotechnology and New Energy 2017, (Ann Arbor, MI, USA, July 2017)
10. 12th Pacific Rim Conference on Ceramic and Glass Technology (PACRIM 12), (Hawaii, USA, May 2017)
11. The 7th Asian Conference on Organic Electronics (A-COE 2015) (Beijing, Oct. 2015).
12. International Photonics and OptoElectronics Meetings 2015 (POEM 2015) (Wuhan Photonics Week) (Wuhan, China, June 2015)
13. Materials Challenges in Alternative & Renewable Energy (MCARE 2015) (Jeju, Korea, Feb. 2015).
14. International Conference on New Materials, Nanotechnology and New Green Energy 2014 (EITA–New Materials 2014)
15. Graphene 2014 International Conference (Nov. 2014)
16. International Symposium on Organic Photovoltaic (OPV-2014), (Sep. 2014)
17. 9th World Congress of Chemical Engineering (Seoul, Korea, Aug. 2013)
18. The 12th Emerging Information & Technology Conference “Research, Innovation, and Commercialization” (Toronto, Canada, Aug. 2012)
19. International Conference on Functional Organic Materials and Related Devices (June 2012)
20. 4th International Conference Smart Materials, Structures and Systems (Italy, June 2012)
21. Science Conference on Materials for Green energy and Forum on Material Characteristics Using Synchrotron Radiation (2011 APAM) (Aug., 2011)
22. 16th Opto-Electronics and Communications Conference (OECC 2011) (July, 2011)

23. OSA-IEEE Topical Conference, Advanced in Optoelectronics and Micro/nano-optics (AOM 2010) (Dec., 2010)
24. The International Conference on Flexible and Printed Electronics (Oct., 2010)
25. Plastic Electronics Asia 2009 (June, 2009)
26. The 3rd International conference in Solar Taiwan 2009 (OPTO 2009) (June, 2009)
27. Printed Electronics Asia, Japan (Oct., 2008)
28. 2008 International Symposium on Flexible Electronics and Displays (ISFED) (Nov., 2008)
29. The 5th International OLED and PLED Workshop in Taipei (April/2007)

Conference Chairman/Committee

1. Section Chair, Optics & Photonics Taiwan, International Conference (OPTIC 2020), (Taipei, Dec. 2020).
2. Technical Program Committee and Session Chair, 2020 International Electron Devices & Materials Symposium (IEDMS 2020), (Taoyuan, Oct. 2020).
3. Program Committee, Optics & Photonics Taiwan, International Conference (OPTIC 2019), (Taichung, Dec. 2019).
4. Section Chair, The 5th International Conference on Advanced Electromaterials (ICAE 2019), (Jeju, Korea, Nov. 2019).
5. Technical Program Committee and Section Chair, 2019 The International Conference on Flexible and Printed Electronics (ICFPE), (Taipei, Oct. 2019).
6. Conference Chair, The 2019 EITA Conference on New Materials, Nanotechnology, Healthcare, New Energy and Sustainable Smart Manufacturing (EITA–New Materials 2019) (EITA–New Materials 2019), (Hsinchu, Sep. 2019).
7. International Advisory Committee, Materials Challenges in Alternative & Renewable Energy 2019 (MCARE 2019), (Jeju, Korea, Aug. 2019).
8. Program Committee, Optics & Photonics Taiwan, International Conference (OPTIC 2018), (Tainan, Dec. 2018).
9. Invited section chairman, 14th IUPAC International Conference on Novel Materials and their Synthesis (NMS-XIV) (Guangzhou, China, Oct. 2018)
10. Technical Program Committee Member, 6th Annual International Conference on Material Science and Engineering (Suzhou, China, June 2018)
11. Section Chair, Taiwan Solid State Lighting (2018 tSSL), (April 2018)
12. Section Chair, The 27th International Conference on Amorphous and Nanocrystalline Semiconductors (Seoul, Korea, Aug. 2017).
13. Program Steering Committee and Section Chair , The EITA Conference on New Materials, Nanotechnology and New Energy 2017, (Ann Arbor, MI, USA, July 2017)
14. Invited section chairman , 12th Pacific Rim Conference on Ceramic and Glass Technology (PACRIM 12), (Hawaii, USA, May 2017)
15. International Advisory Committee , Materials Challenges in Alternative & Renewable Energy (MCARE 2017), (Jeju, Korea, Feb. 2017).
16. Invited section chairman , Optics & Photonics Taiwan, International Conference (OPTIC 2016), (Taipei, Dec. 2016)
17. Invited section chairman , Display Innovation Taiwan Conference 2016 (Taipei, Aug. 2016)
18. Section Chair , The 10th Taiwan Solid State Lighting (2016 tSSL), (April 2016)
19. Session Committee (Photovoltaic Technology), Optics & Photonics Taiwan, International Conference (OPTIC 2015), (Dec. 2015)
20. Section Chair and Technical Program Committee , The International Conference on Flexible and

Printed Electronics (2015 ICFPE), (Oct. 2015)

21. Program Steering Committee and Workshop Track Co-Chair , International Conference on New Materials, Nanotechnology and New Green Energy 2014 (EITA–New Materials 2014)
22. Presiding , International Symposium on Organic Photovoltaic (OPV-2014), (Sep. 2014)
23. Program Section Co-Chair and Section Chair , Photovoltaic Science and Engineering Conference (PVSEC-23), (Nov. 2013)
24. Invited section chairman , 9th World Congress of Chemical Engineering (Seoul, Korea, Aug. 2013)
25. Invited section chairman , Display Taiwan 2013 , Section of AMOLED Panel & Microdisplay (Taipei, June 2013)
26. Invited chairman , 4th International Conference Smart Materials, Structures and Systems (Italy, June 2012)
27. Invited chairman and program committee , Taiwan Display Conference (2012)
28. International Photonics conference (IPC 2011) (Dec. 2011), Program Committee
29. Section Chair, OECC 2011, 16th Opto-Electronics and Communications Conference (July, 2011)
30. OSA-IEEE Topical Conference, Advanced in Optoelectronics and Micro/nano-optics (AOM 2010), (Dec. 2010) International Technical Program Committee.
31. 2010 International Conference on Optics and Photonics in Taiwan (OPT10) (Dec. 2010), Program Committee.
32. Section Program Committee , Optics and Photonics Taiwan (2009)
33. Invited chairman , Plastic Electronics Asia 2009
34. Local Organizer and section chairman, International Symposium on Solar Cell Technologies (ISSCT/OPT) 2008.
35. Invited chairman , OPTO 2008 , The 2nd International conference in Solar Taiwan 2008
36. Invited co-chairman , International Display Manufacturing Conference (IDMC) (2007)
37. Invited chairman , Taiwan Display Conference(2006)
38. Invited chairman , The 4th Asian Photochemistry Conference (2005)
39. Invited co-chairman , International Display Manufacturing Conference (IDMC) (2005)

Journal Editor or Editorial Board

1. Encyclopedia of Modern Optics, edition II, Elsevier (Section Editor: Organic Optoelectronics)
2. Current Smart Materials (Editorial Board)
3. Active and Passive Electronic Components (Editorial Board, 2012-2016)
4. Electronic Monthly (Guest Editor, 2008)

International External reviewer

1. 2014 Work Programme, the French National Research Agency ANR Project Proposal
2. Global Research Network Program 2014, National Research Foundation of Korea
3. 2012 *New University Researchers Start-up Program* of the Fonds de recherche du Québec
4. Chilean Government Commission for Scientific and Technological Development (CONICYT) 2010 Regular Research Funding Competition
5. Work Programme, the French National Research Agency ANR Project Proposal

Published Materials

Number of:

SCI Papers: 125

Book Chapters: 5

Conference Papers: 134

Patents: 4 (international); 12 (domestic/Taiwan)

H-index: 44 (Google Scholar) ; 40 (Web of Science)

Publication List (* Corresponding author)

Journal papers

1. Mukhamed L. Keshtov*, Sergei. A. Kuklin, Alexei R. Khokhlov, Aleksander S. Peregudov, Fang-Chung Chen, Zhiyuan Xie, Ganesh D. Sharma*, “Efficient ternary polymer solar cell using wide bandgap conjugated polymer donor with two non-fullerene small molecule acceptors enabled power conversion efficiency of 16% with low energy loss of 0.47 eV” **Nano Select**, Early view, <https://doi.org/10.1002/nano.202000146>
2. Chen-Min Yang and Fang-Chung Chen* “Position effects of metal nanoparticles on the performance of perovskite light-emitting diodes”, **Nanomaterials** 11, 993 (2021).
3. Gautham Kumar, G. D. Sharma and Fang-Chung Chen*, “Localized surface plasmon resonance of Au–Cu alloy nanoparticles enhances the performance of polymer photovoltaic devices for outdoor and indoor applications”, **Opt. Mater. Express** 11, 1037-1044 (2021).
4. Lu-Syuan Jhuang, Gautham Kumar and Fang-Chung Chen*, “Localized surface plasmon resonance of copper nanoparticles improves the performance of quasi-two-dimensional perovskite light-emitting diodes”, **Dyes Pigm.** 188, 109204 (2021).
5. G. D. Sharma*, R. Suthar, A. A. Pestrikova, A. Y. Nikolaev, Fang-Chung Chen, M. L. Keshtov, “Efficient Ternary Polymer solar cells based ternary active layer consisting of conjugated polymers and non-fullerene acceptors with power conversion efficiency approaching near to 15.5%”, **Sol. Energy**, 216, 217-224 (2021)
6. Wun-Jhen Chen, Yu-Chang Lin, Gautham Kumar, Shun-Yu Xie, Fang-Chung Chen*, “Polymer-capped copper nanoparticles trigger plasmonic field for improving performance of perovskite solar cells” **Synth. Met.** 273, 116675 (2021).
7. Yu-Tung Lin, Gautham Kumar, Fang-Chung Chen*, “Interfacial plasmonic effects of gold nanoparticle-decorated graphene oxides on the performance of perovskite photovoltaic devices” **Sol. Energy**, 211, 822-830 (2020).
8. Ming-Kai Chuang, Chun-Hao Lin, Fang-Chung Chen*, “Accumulated plasmonic effects of gold nanoparticle decorated PEGylated graphene oxides in organic light-emitting diodes” **Dyes Pigm.** 180, 108412 (2020).
9. Chien-Lun Huang, Gautham Kumar, Ganesh D. Sharma, Fang-Chung Chen*, “Plasmonic Effects

of Copper Nanoparticles in Polymer Photovoltaic Devices for Outdoor and Indoor Applications“ **Appl. Phys. Lett.** 116, 253302 (2020).

10. Hsin-Hung Sung, Chien-Chen Kuo, Hung-Sheng Chiang, Hong-Lin Yue, Fang-Chung Chen*, “Differential Space-Limited Crystallization of Mixed-Cation Lead Iodide Single-Crystal Micro-Plates Enhances the Performance of Perovskite Solar Cells” **Solar RRL**, 3, 1900130 (2019).
11. Ming-Ju Wu, Chien-Chen Kuo, Lu-Syuan Jhuang, Po-Han Chen, Yi-Fong Lai, and Fang-Chung Chen*, “Bandgap Engineering Enhances the Performance of Mixed-Cation Perovskite Materials for Indoor Photovoltaic Applications” **Adv. Energy Mater.** 9, 1901863 (2019). **(Inside Front Cover)**
12. Yu-Chi Wang, Heng Li, Yu-Heng Hong, Kuo-Bin Hong, Fang-Chung Chen, Chia-Hung Hsu, Ray-Kuang Lee, Claudio Conti, Tsung Sheng Kao,* and Tien-Chang Lu* “Flexible Organometal–Halide Perovskite Lasers for Speckle Reduction in Imaging Projection” **ACS Nano**, 13, 5421-5429 (2019).
13. Fang-Chung Chen*, “Virtual Screening of Conjugated Polymers for Organic Photovoltaic Devices Using Support Vector Machines and Ensemble Learning” **Int. J. Polym. Sci.**, 2019, 4538514 (2019).
14. Ming-Chuan Hsiao, Ping-Cheng Chien, Lu-Syuan Jhuang and Fang-Chung Chen* “Bidentate Chelating Ligands as Effective Passivating Materials for Perovskite Light-Emitting Diodes”, **Phys. Chem. Chem. Phys.**, 21, 7867-7831 (2019).
15. Fang-Chung Chen*, “Emerging Organic and Organic/Inorganic Hybrid Photovoltaic Devices for Specialty Applications: Low-Level-Lighting Energy Conversion and Biomedical Treatment”, **Adv. Opt. Mater.**, 7, 1800662 (2019). **Top downloaded paper (2018-2019)**
16. M. L. Keshtov, S. A. Kuklin, I.O. Konstantinov, Fang-Chung Chen, Zhi-yuan Xie, G. D Sharma, “New iridium-containing conjugated polymers for polymer solar cell applications”, **New J. Chem**, 42, 17296-17302 (2018).
17. Hong-Lin Yue, Hsin-Hung Sung and Fang-Chung Chen*, “Seeded Space-Limited Crystallization of CH₃NH₃PbI₃ Single-Crystal Plates for Perovskite Solar Cells”, **Adv. Electron. Mater.**, 4 (issue 7), 1700655, (2018).
18. Nai-Wei Teng, Shun-Shing Yang, and Fang-Chung Chen*, “Plasmonic-enhanced organic photovoltaic devices for low-power light applications”, **IEEE J. Photovolt.**, 8, 752-756 (2018).
19. Shun-Shing Yang, Zong-Chun Hsieh, Muchamed L. Keshtov, Ganesh D. Sharma, and Fang-Chung Chen*, “Toward High-Performance Polymer Photovoltaic Devices for Low-Power Indoor Applications”, **Solar RRL**, 1, 1700174 (2017). **(selected as the front cover)**
20. Soon Yie Kok, Zong-Chun Hsieh, Chun-Hsien Chou, Shun-Shing Yang, Ming-Kai Chuang, Yu-Tung Lin, Seong Shan Yap, Teck Yong Tou and Fang-Chung Chen* “Plasmonic effects on bulk heterojunction polymer solar cells : a transient photovoltage and differential charging study” **Sci. Adv. Mater.** 9, 1435-1439 (2017).
21. M.L. Keshtov, S. A. Kuklin, A.R. Khokhlo, S.N. Osipov, N.A. Radychev, D.Y. Godovskiy, I.O. Konstantinov, F. C. Chen, E.N. Koukaras, Ganesh D. Sharma “Polymer solar cells based low bandgap A1-D-A2-D terpolymer based on fluorinated thiadiazoloquinoxaline and benzothiadiazole

acceptors with energy loss less than 0.5 eV” **Org. Electron.** 46, 192-202 (2017).

22. Wai-Chen Lin, Ming-Kai Chuang, Muchamed L. Keshtov, Ganesh D. Sharma, and Fang-Chung Chen* “Photoexfoliation of Two-Dimensional Materials through Continuous UV Irradiation” **Nanotechnology** 28, 125604 (2017).
23. Mukhamed L. Keshtov*, Alexei R. Khokhlov, Serge A. Kuklin, Fang-Chung Chen, Emmanuel N. Koukaras, and Ganesh D. Sharma* “New D-A1-D-A2-Type Regular Terpolymers Containing Benzothiadiazole and Benzotrithiophene Acceptor Units for Photovoltaic Application” **ACS Appl. Mater. Interfaces** 8(48), pp 32998–33009 (2016).
24. Tsung Sheng Kao, Yu-Hsun Chou, Kuo-Bin Hong, Jiong-Fu Huang, Chun-Hsien Chou, Hao-Chung Kuo, Fang-Chung Chen* and Tien-Chang Lu*, “Controllable lasing performance in solution-processed organic inorganic hybrid perovskites” **Nanoscale** 8, 18483-18488 (2016).
25. Yuvraj Patil, Rajneesh Misra, Mukhamed Lostambievich Keshtov, Fang-Chung Chen and Ganesh D Sharma* “Symmetrical and Unsymmetrical Triphenylamine based Diketopyrrolopyrroles and their use as Donor for Solution Processed Bulk Heterojunction Organic Solar Cells” **RSC Adv.** 6, 99685-99694 (2016).
26. M. L. Keshtov*, S. A. Kuklina, I. E. Ostapov, Fang-Chung Chen, and A. R. Khokhlov “Novel Regular D–A-Conjugated Polymers Based on 2,6-Bis (6-fluoro-2-hexyl-2*H*-benzotriazol-4-yl)-4,4-bis(2-ethylhexyl)-4*H*-silolo[3,2-*b*:4,5-*b'*] dithiophene Derivatives: Synthesis, Optoelectronic, and Electrochemical Properties” **Doklady Chem.** 470, 274-278 (2016).
27. Chiung-Fu Huang, M. L. Keshtov and Fang-Chung Chen*, ”Cross-Linkable Hole-Transport Materials Improve the Device Performance of Perovskite Light-Emitting Diodes” **ACS Appl. Mater. Interfaces** 8, 27006-27011 (2016).
28. Yuvraj Patil, Rajneesh Misra,* F. C. Chen, and Ganesh D. Sharma* “Small molecule based N-phenyl carbazole substituted diketopyrrolopyrroles as donors for solution-processed bulk heterojunction organic solar cells” **Phys. Chem. Chem. Phys.** 18, 22999-23005 (2016).
29. Tsung Sheng Kao, Kuo-Bin Hong, Yu-Hsun Chou, Jiong-Fu Huang, Fang-Chung Chen*, and Tien-Chang Lu* “Localized surface plasmon for enhanced lasing performance in solution-processed perovskites” **Opt. Express**, 24, 20696-20702 (2016).
30. M. L. Keshtov,* A. R. Khokhlov, S. A. Kuklin, F. C. Chen, A. Y. Nikolaev, E. N. Koukaras and G. D. Sharma* “Synthesis of alternating D–A1–D–A2 terpolymers comprising two electron-deficient moieties, quinoxaline and benzothiadiazole units for photovoltaic applications” **Polym. Chem.** 7, 4025 (2016).
31. Yu-Sheng Hsiao*, Yan-Hao Liao, Huan-Lin Chen, Peilin Chen and Fang-Chung Chen*, ”Organic photovoltaics and bioelectrodes providing electrical stimulation for PC12 cell differentiation and neurite outgrowth” **ACS Appl. Mater. Interfaces** 8, 9275 (2016).
32. M. L. Keshtov*, S. A. Kuklin, D. Y. Godovsky, A. R. Khokhlov, R. Kurchania, F. C. Chen, Emmanuel N. Koukaras, G. D. Sharma* “New Alternating D–A1–D–A2 Copolymer Containing

Two Electron-Deficient Moieties Based on Benzothiadiazole and 9-(2-Octyldodecyl)-8H-pyrrolo[3,4-b]bisthieno[2,3-f:3',2'-h]quinoxaline-8,10(9H)-dione for Efficient Polymer Solar Cells” **J. Polym. Sci. Part A: Polym. Chem.** 54, 155-168 (2016).

33. Ming-Kai Chuang, Shun-Shing Yang and Fang-Chung Chen*, “Metal Nanoparticle-Decorated Two-Dimensional Molybdenum Sulfide for Plasmonic-Enhanced Polymer Photovoltaic Devices” **Materials** 8, 5414-5425 (2015).
34. M. L. Keshtov*, S.A. Kuklin, F. C. Chen, A. R. Khokhlov, Rajnish Kurchania and G. D. Sharma* “A new D-A conjugated polymer P(PTQD-BDT) with PTQD acceptor and BDT donor units for BHJ polymer solar cells application” **J. Polym. Sci. Part A: Polym. Chem.** 53, 2390-2398 (2015).
35. Chung-Lei Chen, Ming-Kai Chuang, Chyong-Hua Chen, Chih-Wei Chu, Muchamed L. Keshtov, and Fang-Chung Chen*, “Efficient and stable polymer solar cells prepared with plasmonic graphene oxides as the anode buffers” **Semicond. Sci. Tech.** 30, 085013 (2015).
36. Chun-Hsien Chou, Min-Hung Hsu and Fang-Chung Chen*, “Flexible luminescent waveguiding photovoltaics exhibiting strong scattering effects from the dye aggregation” **Nano Energy** 15, 729-736 (2015).
37. M. L. Keshtov*, G. D. Sharma*, S. A. Kuklin, I. E. Ostapov, D. Yu. Godovsky, A. R. Khokhlov, and F. C. Chen, “Synthesis and characterization of two new benzothiadiazole- and fused bithiophene based low band-gap D-A copolymers: application as donor bulk heterojunction polymer solar cells” **Polymer** 65, 193 (2015)
38. Ming-Kai Chuang, and Fang-Chung Chen*, “Synergistic plasmonic effects of metal nanoparticle–decorated PEGylated graphene oxides in polymer solar cells” **ACS Appl. Mater. Interfaces** 7, 7397–7405 (2015).
39. M. L. Keshtov*, D. Yu. Godovsky, F. C. Chen, A. R. Khokhlov, S. A. Siddiqui, and G. D. Sharma* “Synthesis and characterization of π -conjugated copolymers with thieno-imidazole units in the main chain: application for bulk heterojunction polymer solar cells” **Phys. Chem. Chem. Phys.** 17, 7888 (2015).
40. M. L. Keshtov*, D. Y. Godovsky, S. A. Kuline, Y. Zou, Fang-Chung Chen, and A. R. Khokhlov “New Thienofluoroanthenes as Building Blocks for Optoelectronic Applications” **Doklady Chem.** 461, 75 (2015).
41. Tsung Sheng Kao, Yu-Hsun Chou, Chun-Hsien Chou, Fang-Chung Chen*, and Tien-Chang Lu* “Lasing behaviors upon phase transition in solution-processed perovskite thin films” **Appl. Phys. Lett.** 105, 231108 (2014).
42. An-Kai Ling, Chun-Hao Lin, Hsun Liang, and Fang-Chung Chen* “Tunable microcavities in organic light-emitting diodes by way of low-refractive-index polymer doping” **Org. Electron.** 15, 3648 (2014).
43. Ming-Kai Chuang, Fang-Chung Chen*, and Chain-Shu Hsu “Gold nanoparticle–graphene oxide nanocomposites that enhance the device performance of polymer solar cells” **J. Nanomater.** 2014,

44. Chun-Hsien Chou and Fang-Chung Chen* “Plasmonic nanostructures for light trapping in organic photovoltaics devices” **Nanoscale** 6, 8444 (2014).
45. Yen-Tseng Lin, Chu-Hsien Chou, Fang-Chung Chen*, Chih-Wei Chu, and Chain-Shu Hsu “Reduced optical loss in mechanically stacked multi-junction organic solar cells exhibiting complementary absorptions” **Opt. Express**, 22, S2, A481-A490 (2014).
46. Yu-Hsuan Ho, Hsun Liang, Shun-Wei Liu, Wei-Cheng Tian, Fang-Chung Chen and Pei-Kuan Wei* “Efficiency improvement of organic bifunctional devices by applying omnidirectional antireflection nanopillars” **RSC Adv.** 4, 9588 (2014).
47. Ming-Kai Chuang, Shih-Wei Lin, Fang-Chung Chen*, Chih-Wei Chu, and Chain-Shu Hsu “Gold nanoparticle-decorated graphene oxides for plasmonic-enhanced polymer photovoltaic devices” **Nanoscale** 6, 1573 (2014).
48. Wei-Ting Lin, Yen-Tseng Lin, Chu-Hsien Chou, Fang-Chung Chen* and Chain-Shu Hsu “Organic solar cells comprising multiple-device stacked structures exhibiting complementary absorption behavior” **Sol. Energy Mater. Sol. Cells** 120, 724 (2014).
49. Kim-Shih Tan, Ming-Kai Chuang, Fang-Chung Chen*, and Chain-Shu Hsu “Solution-processed nanocomposites containing molybdenum oxide and gold nanoparticles as anode buffer layers in plasmonic-enhanced organic photovoltaic devices” **ACS Appl. Mater. Interfaces** 5, 12419 (2013).
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Book Chapters

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Conference papers

International Conference Papers (sorted by conference location)

1. Hsin-Hung Sung, Hong-Lin Yue, Chien-Chen Kuo, Hung-Sheng Chiang, Fang-Chung Chen*, “Asymmetric thin-plate perovskite single crystals for photovoltaic applications”, The 5th International Conference on Advanced Electromaterials (ICAE), Jeju, Korea (2019). **(invited oral presentation)**
2. Hsin-Hung Sung, Hong-Lin Yue, Chien-Chen Kuo, Hung-Sheng Chiang, Fang-Chung Chen*, “Asymmetric thin-plate perovskite single crystals for solar energy applications” 2019 Collaborative Conference on Materials Research (CCMR), Goyang, South Korea (2019). **(invited oral presentation)**
3. Fang-Chung Chen, Shun-Shing Yang, Nai-Wei Teng, and Zong-Chun Hsieh, “High-efficient organic and perovskite photovoltaic devices for low-power indoor applications”, 14th IUPAC International Conference on Novel Materials and their Synthesis (NMS-XIV), Guangzhou, China (2018). **(invited oral presentation)**
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6. Shun-Shing Yang, Po-Han Chen, Zong-Chun Hsieh, Nai-Wei Teng, Fang-Chung Chen* “Emerging Photovoltaic Devices for low-power indoor applications” The EITA Conference on New Materials, Nanotechnology and New Energy 2017, Ann Arbor, Michigan, U.S.A. **(invited oral presentation)**
7. Fang-Chung Chen* “High-efficient organic and perovskite photovoltaic devices for low-power indoor applications” The 12th Pacific Rim Conference on Ceramic and Glass Technology, Hawaii, May 2017 **(invited oral presentation)**.
8. Ming-Kai Chuang, Chun-Hao Lin, and Fang-Chung Chen* “Plasmonic Effects of Amphiphilic Gold Nanoparticles in Polymer Optoelectronic Devices” 2016 International Conference on Optical MEMS and Nanophotonics (IEEE OMN 2016), Singapore, Aug. 2016.

9. Fang-Chung Chen,* “Plasmonic nanostructures for organic photovoltaic devices” The 7th Asian Conference on Organic Electronics (A-COE 2015), Beijing, China, Oct. 2015 (**invited oral presentation**).
10. Ming-Kai Chuang and Fang-Chung Chen* “Plasmonic nanostructures for organic photovoltaic devices”, International Photonics and OptoElectronics Meetings 2015 (Wuhan Photonics Week), Wuhan, China, June 2015 (**invited oral presentation**).
11. Fang-Chung Chen,* Ming-Kai Chuang, and Shih-Wei Lin, “Plasmonic nanostructures for organic photovoltaic devices” Materials Challenges in Alternative & Renewable Energy (MCARE 2015), (Jeju, Korea, Feb. 2015). (**invited oral presentation**)
12. D. Yu. Godovsky, M. L. Keshtov, S. A. Kuklin, A. R. Khokhlov,, I.O. Konstantinov, M. M. Krayushkin, G. D Sharma, Fang-Chung Chen, “Synthesis and characterization of two new benzothiadiazole- and fused bithiophene based low band-gap D-A copolymers for polymer solar cells” 8th International Symposium on Flexible Organic Electronic (ISFOE 15) (Thessaloniki, Greece, July 2015).
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18. Fang-Chung Chen* “Light Harvesting Schemes for High-performance Polymer Solar Cells” The 12th Emerging Information & Technology Conference (Toronto, Canada, Aug. 2012) (**invited oral presentation**)
19. Fang-Chung Chen*, Jyh-Lih Wu, Chia-Ling Lee, Yi Hong, Ming-Kai Chuang and Kim-shih Tan “Light Harvesting Schemes for High-performance Polymer Solar Cells” 4th International Conference Smart Materials, Structures and Systems (Italy, June 2012) (**invited oral presentation**)
20. Fang-Chung Chen*, and Ming-Kai Chuang “Thin-film Transfer-printing of Polymer Blends with

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21. Fang-Chung Chen*, Tzung-Da Chen, Bing-Ruei Zeng and Ya-Wei Chung “Electrical Characteristics of Flexible Organic Thin-film Transistors under Bending Conditions” The 17th International Display Workshops (IDW) (Dec. 2010 Japan).
22. Fang-Chung Chen*, Jyh-Lih Wu, Yi Hung “Light Harvesting Schemes for High-performance Polymer Solar Cells” Advances in Optoelectronics and Micro/nano-optics (AOM) (Dec. 2010 Guangzhou, China) **(invited oral presentation)**
23. Fang-Chung Chen*, and Shang-Chieh Chien “Nanoscale functional interlayers formed through spontaneous vertical phase separation in polymer photovoltaic devices” MRS (Spring 2010) (oral presentation).
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2. Yi-Fong Lai, Shun-Yu Xie and Fang-Chung Chen* "Surface Treatments Lead to Simultaneous Efficiency Improvement in Perovskite Solar Cells for Both Outdoor and Indoor applications" Optics & Photonics Taiwan, International Conference 2020 (OPTIC 2020).
3. Tzu-Hsueh Wu, Yung-Fang Yang and Fang-Chung Chen* "Surface Passivation on Single-Crystal Perovskite Micro-Plates Improves the Performance of Solar Cells" Optics & Photonics Taiwan, International Conference 2020 (OPTIC 2020).
4. Hao-Yeu Tsai, Hung-Wen Huang and Fang-Chung Chen* "Vertical Oriented Quasi-Two-Dimensional Perovskite Single Crystal Micro-Plates for Highly Efficient Solar Cells" Optics & Photonics Taiwan, International Conference 2020 (OPTIC 2020).
5. Fang-Chung Chen*, Hsin-Hung Sung, Chien-Chen Kuo Hung-Sheng Chiang and Hong-Lin Yue "Perovskite Single Crystals for Photovoltaic Applications" International Conference on Emergent

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8. Fang-Chung Chen* “Off-grid Photovoltaics for Smart Applications” The EITA Conference on New Materials, Nanotechnology and New Energy 2019, Hsinchu, Taiwan **(invited oral presentation)**
9. Wun-Jhen Chen, Tzu-Hsueh Wu, Fang-Chung Chen* “Enhancing the Performance of Perovskite Solar Cells by Utilizing the Local Surface Plasmon Effects of Copper Nanoparticles” The EITA Conference on New Materials, Nanotechnology and New Energy 2019, Hsinchu, Taiwan.
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16. Pang-Hua Huang, Yi-Chun Lai, Sih-Han Chen, Peichen Yu*, and Fang-Chung Chen ” Hybrid Carbon Nanotube/Silicon Schottky Junction Solar Cells” Optics & Photonics Taiwan, International Conference 2016 (OPTIC 2016)
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