Jian-Zhang Chen （陳建彰）， Professor

環境與光電能源實驗室 (應力所 105 室)
Environmental and Energy Devices Laboratory

B.S. in Department of Mechanical Engineering,
National Taiwan University, 1996.
M.S. in Institute of Materials Science and Engineering,
National Taiwan University, 1998.
Ph.D. in Department of Electrical Engineering,
Princeton University, 2006.

Jian-Zhang Chen joined the faculty of National Taiwan University in 2007. His current research interests are rapid atmospheric pressure plasma materials processing, paper based electronics, perovskite solar cells and dye-sensitized solar cells, paper based energy storage devices, paper based microfluidics, metal oxide materials and devices, and wearable devices.

研究主題

1. 常壓電漿材料製程技術
2. 常壓介電質輝光放電材料製程技術
3. 紙基微流道生醫晶片開發
4. 紙基超級電容
5. 紙基軟性電子材料及元件
6. 鈣鈦礦及染料敏化太陽能電池
7. 奈米材料能源元件
8. 氧化物電子材料與元件

最近代表性期刊論文

1. Jui-Chen Hsin, Yi-Chen Cheng, Meng-Jiy Wang, Cheng-Che Hsu, I-Chun Cheng, Jian-Zhang Chen, "Ar dielectric barrier discharge jet (DBDjet) plasma treatment of reduced graphene oxide (rGO)–polyaniline (PANI)–chitosan (CS) nanocomposite on carbon cloth for supercapacitor application," Energy, Ecology and Environment, 2019.
2. Te-En Li, Jui-Hsuan Tsai, I-Chun Cheng, Cheng-Che Hsu, Jian-Zhang Chen, "Atmospheric-pressure surface-diffusion dielectric-barrier discharge (SDDBD) plasma surface modification of PEDOT:PSS," Synthetic Metals, vol. 256, p. 116114 (2019).
3. Zhen-Chun Chen; Yu Cheng; Chan-Cheng Lin; Chia-Shuo Li; Cheng-Che Hsu; Jian-Zhang Chen; Chih-I Wu; I-Chun Cheng, "In-Situ Atmospheric-Pressure Dielectric Barrier Discharge Plasma Treated CH3NH3PbI3 for Perovskite Solar Cells in Regular Architecture," Applied Surface Science, vol. 473, pp. 468-475 (2019).
4. Jui-Hsuan Tsai, I-Chun Cheng, Cheng-Che Hsu, Chu-Chen Chueh, Jian-Zhang Chen, "Feasibility study of atmospheric-pressure dielectric barrier discharge treatment on $CH_3NH_3PbI_3$ films for inverted planar perovskite solar cells," Electrochimica Acta, vol. 293, pp. 1-7 (2019).

5. Chia-Chun Lee, Tzu-Ming Huang, I-Chun Cheng, Cheng-Che Hsu, and Jian-Zhang Chen, "Time Evolution Characterization of Atmospheric-Pressure Plasma Jet (APPJ)-Synthesized Pt-SnO_x Catalysts," Metals: Special issue - Plasmas Processes Applied on Metals and Alloys, Metals, vol. 8, 690.
6. **[Invited paper]** Aliyah R. Hsu, Hung-Hua Chien, Chen-Yu Liao, Chia-Chun Lee, Jui-Hsuan Tsai, Cheng-Che Hsu, I-Chun Cheng, Jian-Zhang Chen, "Scan-mode atmospheric-pressure plasma jet processed reduced graphene oxides for quasi-solid-state gel-electrolyte supercapacitors," Coatings, vol. 8, p. 52 (2018).
7. Hung-Hua Chien, Chen-Yu Liao, Yu-Chuan Hao, Cheng-Che Hsu, I-Chun Cheng, Ing-Song Yu, Jian-Zhang Chen, "Improved performance of polyaniline/reduced-graphene-oxide supercapacitor using atmospheric-pressure-plasma-jet surface treatment of carbon cloth," Electrochimica Acta, vol. 260, pp. 391-399 (2018).
8. Chia-Chun Lee, Ting-Hao Wan, Cheng-Che Hsu, I-Chun Cheng, and Jian-Zhang Chen, "Atmospheric-Pressure Plasma Jet Processed Pt/ZnO Composites and its Application as Counter-Electrodes for Dye-Sensitized Solar Cells," Applied Surface Science, vol. 436, pp. 690-696 (2018).
9. Jui-Hsuan Tsai, I-Chun Cheng, Cheng-Che Hsu, Jian-Zhang Chen, "DC-pulse atmospheric-pressure plasma jet and dielectric barrier discharge surface treatments on fluorine-doped tin oxide for perovskite solar cell application," Journal of Physics D: Applied Physics, vol. 51(2), p. 025502 (2018).
10. Ting-Hao Wan, Chia-Chun Lee, Chieh-Wen Chen, Cheng-Che Hsu, I-Chun Cheng, Jian-Zhang Chen, "A comparison study of furnace and atmospheric-pressure-plasma jet calcined Pt-decorated reduced graphene oxides for dye-sensitized solar cell application," Journal of the Electrochemical Society, vol. 164 (13), pp.H931-H935 (2017).
11. Cheng-Han Yang, Chieh-Wen Chen, Yu-Kuan Lin, Yi-Chun Yeh, Cheng-Che Hsu, Yu-Jui Fan, Ing-Song Yu, Jian-Zhang Chen, "Atmospheric-pressure plasma jet processed carbon-based electrochemical sensor integrated with a 3D-printed microfluidic channel," Journal of the Electrochemical Society, vol. 164 (12), pp. B534-B541 (2017).
12. Fei-Hong Kuok, Ken-Yuan Kan, Ing-Song Yu, Chieh-Wen Chen, Cheng-Che Hsu, I-Chun Cheng, Jian-Zhang Chen, "Application of atmospheric-pressure plasma jet processed carbon nanotubes to liquid and quasi-solid-state gel electrolyte supercapacitors," Applied Surface Science, vol. 425, pp.321-328 (2017).
13. Cheng-Han Yang, Fei-Hong Kuok, Chen-Yu Liao, Ting-Hao Wan, Chieh-Wen Chen, Cheng-Che Hsu, I-Chun Cheng, Jian-Zhang Chen, "Flexible reduced graphene oxide supercapacitor fabricated using a nitrogen dc-pulse atmospheric-pressure plasma jet," Materials Research Express, vol. 4, p. 025504 (2017).
14. Fei-Hong Kuok, Chen-Yu Liao, Ting-Hao Wan, Po-Wei Yeh, I-Chun Cheng, Jian-Zhang Chen, "Atmospheric pressure plasma jet processed reduced graphene oxides for supercapacitor application," Journal of Alloys and Compounds, vol. 692, pp. 558-562 (2017).
15. Jian-Zhang Chen, Ching Wang, Cheng-Che Hsu, I-Chun Cheng, "Ultrafast synthesis of carbon-nanotube counter-electrode of dye-sensitized solar cell using atmospheric-pressure-plasma-jet," Carbon, vol. 98, pp. 34-40 (2016).