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研究主題

1. 紙基電池
2. 氫能技術
3. 常壓電漿材料製程技術
4. 常壓介電質輝光放電材料製程技術
5. 軟性超級電容
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. Chen Liu, Cheng-Wei Hung, I-Chung Cheng, Cheng-Che Hsu, I-Chun Cheng, and Jian-Zhang Chen (2021, Oct). Dielectric Barrier Discharge Plasma Jet (DBDjet) Processed Reduced Graphene Oxide/Polypyrrole/Chitosan Nanocomposite Supercapacitors. *Polymers*, vol. 13, p.3585.
2. Jung-Hsien Chang, Song-Yu Chen, Yu-Lin Kuo, Chii-Rong Yang, Jian-Zhang Chen (2021, May). Carbon Dioxide Tornado-Type Atmospheric-Pressure-Plasma-Jet-Processed rGO-SnO2 Nanocomposites for Symmetric Supercapacitors. *Materials*, vol. 14, p.2777.
3. I-Hsuan Chen, Ming-Wei You, Jui-Hsuan Tsai, Jung-Hsien Chang, I-Chun Cheng, Cheng-Che Hsu, Shyh-Chyang Luo, Chien-Fu Chen, Jian-Zhang Chen (2021, Mar). Feasibility study of dielectric barrier discharge jet (DBDjet)-patterned perfluorodecyltrichlorosilane (PFDTS)-coated paper for biochemical diagnosis. *ECS Journal of Solid-State Science and Technology*, vol. 10, p.037005.
4. Jung-Hsien Chang, Ming-Feng Lin, Yu-Lin Kuo, Chii-Rong Yang, Jian-Zhang Chen, “Flexible rGO-SnO2 supercapacitors converted from pastes containing SnCl2 liquid precursor using atmospheric-pressure plasma jet, Ceramic International, vol. 47, pp. 1651-1659 (2021).

5. Chia-Hui Tseng, Jui-Chen Hsin, Jui-Hsuan Tsai, Jian-Zhang Chen, “Dielectric-barrier-discharge jet treated flexible supercapacitors with carbon cloth current collectors of long-lasting hydrophilicity,” Journal of the Electrochemical Society, vol. 167, p. 116511 (2020)
6. 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).
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8. 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.
9. **[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).
10. 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).
11. 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).
12. 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).
13. 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).
14. 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).
15. 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).