能源電池科技博士學位學程
Ph.D. Program of Energy and Battery Technology

一、師資

職稱	姓名	學歷	專長
講座教授 兼綠能中心主任 兼學程主任	楊純誠 Chun-Chen Yang	美國哥倫比亞大學 化工博士	電化學、電化學工程、電池技術、高分子電解質膜
教授	壽雅史 Kotobuki, Masashi	University of Yamanashi, Graduate School of Engineering 博士	固態電解質奈米材料合成分析、材料特性分析、鋰電池材料分析
助理教授	洪太峰 Hung, Tai-Feng	中原大學 化學研究所博士	儲能元件關鍵材料開發與系統設計、奈米複合雙效觸媒結構設計與合成、電化學檢測與分析、高分子合成與加工

二、期刊論文

[1] Thi BeTa Truong, Ying-Ru Chen, Guan-Yin Lin, Han-Tu Lin, Yi-Shiuan Wu, Chun-Chen Yang,“Lithium polyacrylate polymer coating enhances the performance of graphite/silicon/carbon composite anodes”,ELECTROCHIMICA ACTA,365,pp.137287-1,pp.137287-12,2021,【SCIE ＆EI 】

[2] Shimelis Lemma Beshahwured, Yi-Shiuan Wu, She-huang Wu, Wen-Chen Chien, Rajan Jose, Shingjiang Jessie Lue, Chun-Chen Yang,“Flexible hybrid solid electrolyte incorporating ligament -shaped Li6.25Al0.25La3Zr2O12 filler for all-solid-state lithium-metal batteries”,ELECTROCHIMICA ACTA,366,pp.137348-1,pp.137348-16,2021,【SCIE ＆EI 】

[3] Kumlachew Zelalem Walle, Lakshmipriya Musuvadhi Babulal, She−Huang Wu, Wen-Chen Chien, Rajan Jose, Shingjiang Jessie Lue, Jeng-Kuei Chang, Chun-Chen Yang,“Electrochemical Characteristics of a Polymer/Garnet Trilayer Composite Electrolyte for Solid-State Lithium-Metal Batteries”,ACS APPLIED MATERIALS & INTERFACES,13,（2）,pp.2507,pp.2520,2021,【SCIE ＆EI 】

[4] Venkatesh, Krishnan Rajakumaran, Ramachandran Chen, Shen-Ming Karuppiah, Chelladurai Yang, Chun-Chen Ramaraj, Sayee Kannan Ali, Mohammad Ajmal Al-Hemaid, Fahad M. A. El-Shikh, Mohammad Suliman Almunqedhi, B. M. A.,“A novel hybrid construction of MnMoO4 nanorods anchored graphene nanosheets an efficient electrocatalyst for the picomolar detection of ecological pollutant ornidazole in water and urine samples”,CHEMOSPHERE,273,pp.129665-1,pp.129665-13,2021,【SCIE ＆EI 】

[5] Bincy Lathakumary Vijayana, Izan Izwan Misnon, Chelladurai Karuppaiah, Gopinathan M. Anil Kumar, Shengyuan Yang, Chun-Chen Yang, Rajan Jose,“Thin metal film on porous carbon as a medium for electrochemical energy storage”,JOURNAL OF POWER SOURCES,489,pp.229522-1,pp.229522-12,2021,【SCIE ＆EI 】

[6] Chelladurai Karuppiah, Balamurugan Thirumalraj, Srinivasan Alagar, Shakkthivel Piraman, Ying-Jeng Jame Li, Chun-Chen Yang,“Solid-State Ball-Milling of Co3O4 Nano/Microspheres and Carbon Black Endorsed LaMnO3 Perovskite Catalyst for Bifunctional Oxygen Electrocatalysis”,CATALYSTS,11,（1）,pp.76-1,pp.76-15,2021,【SCIE ＆EI 】

[7] Chelladurai Karuppiah, Krishnan Venkatesh, Prabhakarn Arunachalam, Sayee Kannan Ramaraj, Abdullah M Al-Mayouf, Chun-Chen Yang,“Optimization of S-dopant on N, S co-doped graphene/CNT-Fe3C nanocomposite electrode for non-enzymatic H2O2 sensor”,MATERIALS LETTERS,285,pp.129001-1,pp.129001-4,2021,【SCIE ＆EI 】

[8] Yi-Shiuan Wu, Quoc-Thai Phamc, Chun-Chen Yang, Chorng-Shyan Chern, Lakshmipriya Musuvadhi Babulal, Manojkumar Seenivasana, Gunther Brunklaus, Tobias Placke, Bing-Joe Hwang, Martin Wintere,“Study of electrochemical performance and thermal property of LiNi0.5Co0.2Mn0.3O2 cathode materials coated with a novel oligomer additive for high-safety lithium-ion batterie”,CHEMICAL ENGINEERING JOURNAL,405,pp.126727-1,pp.126727-16,2021,【SCIE ＆EI 】

[9] Meng-Zhen Li, Chih-Chien Lee, Sajal Biring, I-Sheng Hsu, Dian Luo, Richie Estrada, Yi-Shiuan Wu, Chun-Chen Yang, Shun-Wei Liu,“Vacuum-Deposited Transparent Organic Photovoltaics for Efficiently Harvesting Selective Ultraviolet and Near- Infrared Solar Energy”,SOLAR RRL,5,（3）,pp.2000564-1,pp.2000564-11,2021,【SCIE ＆EI 】

[10]Manojkumar Seenivasan, Chun-Chen Yang, She-huang Wu, Wen-Chen Chien, Yi-Shiuan Wu, Rajan Jose, Shingjiang Jessie Lue,“Using a Couette-Taylor vortex flow reactor to prepare a uniform and highly stable Li[Ni0.80Co0.15Al0.05]O-2 cathode material”,JOURNAL OF ALLOYS AND COMPOUNDS,857,pp.157594-1,pp.157594-11,2021,【SCIE ＆EI 】

[11]Krishnan Venkatesh, Balamurugan Muthukutty, Shen-Ming Chen, Chelladurai Karuppiah, Baishnisha Amanulla, Chun-Chen Yang, Sayee Kannan Ramaraja,“Nanomolar level detection of non-steroidal antiandrogen drug flutamide based on ZnMn2O4 nanoparticles decorated porous reduced graphene oxide nanocomposite electrode”,JOURNAL OF HAZARDOUS MATERIALS,405,pp.124096-1,pp.124096-13,2021,【SCIE ＆EI 】

[12]Tai-Feng Hung, Tzu-Hsien Hsieh, Feng-Shun Tseng, Lu-Yu Wang, Chang-Chung Yang, Chun-Chen Yang,“High-Mass Loading Hierarchically Porous Activated Carbon Electrode for Pouch-Type Supercapacitors with Propylene Carbonate-Based Electrolyte”,NANOMATERIALS,11,（3）,pp.785-1,pp.785-10,2021,【SCIE ＆EI 】

[13]Chelladurai Karuppiah, Chao-Nan Wei, Natarajan Karikalan, Zong-Han Wu, Balamurugan Thirumalraj, Li-Fan Hsu, Srinivasan Alagar, Shakkthivel Piraman, Tai-Feng Hung, Ying-Jeng Jame Li, Chun-Chen Yang,“Graphene Nanosheet-Wrapped Mesoporous La0.8Ce0.2Fe0.5Mn0.5O3 Perovskite Oxide Composite for Improved Oxygen Reaction Electro-Kinetics and Li-O-2 Battery Application”,NANOMATERIALS,11,（4）,pp.1025-1,pp.1025-16,2021,【SCIE ＆EI 】

[14]Raja Palani, Chelladurai Karuppiah, Chun-Chen Yang, Shakkthivel Piraman,“Metal-organic frameworks derived spinel NiCo2O4/graphene nanosheets composite as a bi-functional cathode for high energy density LieO(2) battery applications”,INTERNATIONAL JOURNAL OF

HYDROGEN ENERGY,46,（27）,pp.14288,pp.14300,2021,【SCIE ＆EI 】

[15]Ria Kunwar, Syam G. Krishnan, Izan Izwan Misnon, Fatemeh Zabihi, Shengyuan Yang, Chun-Chen Yang, Rajan Jose,“Transformation of Supercapacitive Charge Storage Behaviour in a Multi elemental Spinel CuMn2O4 Nanofibers with Alkaline and Neutral Electrolytes”,ADVANCED FIBER MATERIALS,3,（4）,pp.265,pp.274,2021,【SCIE ＆EI 】

[16]Lakshmipriya Musuvadhi Babulala, Chun–Chen Yang, She-huang Wu, Wen-Chen Chien, Rajan Jose, Shingjiang Jessie Lue,“Enhanced performance of a Ni-rich LiNi0.8Co0.1Mn0.1O2 cathode material formed through Taylor flow synthesis and surface modification with Li2MoO4”,CHEMICAL ENGINEERING JOURNAL,413,pp.127150-1,pp.127150-13,2021,【SCIE ＆EI 】

[17]Sivakumar Musuvadhi Babulal, Shen-Ming Chen, Raja Palani, Krishnan Venkatesh, Ahmed S. Haidyrah, Sayee Kannan Ramaraj, Chun-Chen Yang, Chelladurai Karuppiah,“Graphene oxide template based synthesis of NiCo2O4 nanosheets for high performance non-enzymatic glucose sensor”,COLLOIDS AND SURFACES A-PHYSICOCHEMICAL AND ENGINEERING ASPECTS,621,pp.126600-1,pp.126600-13,2021,【SCIE ＆EI 】

[18]Asfand Yar, John Ojur Dennis, Amina Yasin, Fasih Ud Din, Muhammad Irfan, Muhammad Saad Khan, Chun-Chen Yang, Rajan Jose,“The solar reduction of graphene oxide on a large scale for high density electrochemical energy storage”,SUSTAINABLE ENERGY & FUELS,5,（10）,pp.2724,pp.2733,2021,【SCIE ＆EI 】

[19]Seenivasan, Manojkumar Yang, Chun-Chen Wu, She-huang Li, Ying-Jeng Jame Chien, Wen-Chen Piraman, Shakkthivel Lue, Shingjiang Jessie,“Improving structural and thermal stability of LiNi0.8Co0.15Al0.05O2 by a fast-ionic-conductive LiAlSiO4 surface coating for Li-ion batteries”,ELECTROCHIMICA ACTA,387,pp.138620-1,pp.138620-13,2021,【SCIE ＆EI 】

[20]JinKiong Ling, Chelladurai Karuppiah, Syam G. Krishnan, M. V. Reddy, Izan Izwan Misnon, Mohd Hasbi Ab Rahim, Chun-Chen Yang, and Rajan Jose,“Phosphate Polyanion Materials as High-Voltage Lithium-Ion Battery Cathode: A Review”,ENERGY & FUELS,35,（13）,pp.10428,pp.10450,2021,【SCIE ＆EI 】

[21]PEI-HAN GUO, HSIN-MING CHENG, JENG-SHIUNG CHEN, YI-SHIUAN WU, CHUN-CHEN YANG, FU-YEN ZENG, REN-JIE CHUNG, PO-TUAN CHEN,“Novel Triaxial Raman Scanning Platform for Evaluating Integrity of Graphite Electrodes in Li-Ion Batteries”,IEEE ACCESS,9,pp.81895,pp.81901,2021,【SCIE ＆EI 】

[22]Jagabandhu Patra, Shu-Chi Wu, Ing-Chi Leu, Chun-Chen Yang, Rajendra S. Dhaka, Shigeto Okada, Hsiu-Liang Yeh, Chieh-Ming Hsieh, Bor Kae Chang, Jeng-Kuei Chang,“Hydrogenated Anatase and Rutile TiO2 for Sodium-Ion Battery Anodes”,ACS APPLIED ENERGY MATERIALS,4,（6）,pp.5738,pp.5746,2021,【SCIE ＆EI 】

[23]Raja Palani, Venkatasamy Anitha, Chelladurai Karuppiah, Subramanian Rajalakshmi, Ying-Jeng Jame Li, Tai-Feng Hung, Chun-Chen Yang,“Imidazolatic-Framework Bimetal Electrocatalysts with a Mixed- Valence Surface Anchored on an rGO Matrix for Oxygen Reduction, Water Splitting, and Dye Degradation”,ACS OMEGA,6,

（24）,pp.16029,pp.16042,2021,【SCIE ＆EI 】

[24]Bhupender Pal, Amina Yasin, Rupinder Kaur, Mike Tebyetekerwa, Fatemeh Zabihi, Shengyuan Yang, Chun-Chen Yang, Zděnek Sofer, Rajan Jose,“Understanding electrochemical capacitors with in-situ techniques”,RENEWABLE & SUSTAINABLE ENERGY REVIEWS,149,pp.111418-1,pp.111418-16,2021,【SCIE ＆EI 】

[25]Hoai Khang Tran, Lakshmipriya Musuvadhi Babulal, Yi-Shiuan Wu, Tai-Feng Hung, Wen-Chen Chien, She-Huang Wu, Rajan Jose, Shingjiang Jessie Lue, and Chun-Chen Yang,“A Sandwich-Structure Composite Polymer Electrolyte Based on Poly(vinyl alcohol)/Poly(4-lithium styrene sulfonic acid) for High-Voltage Lithium Batteries”,ACS APPLIED ENERGY MATERIALS,4,（8）,pp.8016,pp.8029,2021,【SCIE ＆EI 】

[26]Bincy Lathakumary Vijayan, Amina Yasin, Izan Izwan Misnon, Gopinathan M. Anilkumar, Fathalla Hamed, Chun-Chen Yang, and Rajan Jose,“Dual Hybrid Energy Storage Device with a Battery-Electrochemical Capacitor Hybrid Cathode and a Battery-Type Anode”,ENERGY & FUELS,35,（16）,pp.13438,pp.13448,2021,【SCIE ＆EI 】

[27]JinKiong Ling, Chelladurai Karuppiah, M. V. Reddy, Bhupender Pal1,4, Chun-Chen Yang2, Rajan Jose1,a,“Unraveling synergistic mixing of SnO2-TiO2 composite as anode for Li-ion battery and their electrochemical properties”,JOURNAL OF MATERIALS RESEARCH,36,（20）,pp.4120,pp.4130,2021,【SCIE ＆EI 】

[28]Teshome Assefa Nigatu, Hailemariam Kassa Bezabh, Bereket Woldegbreal Taklu, Bizualem Wakuma Olbasa, Yu-Ting Weng, She-Huang Wu, Wei-Nien Su, Chun-Chen Yang, Bing Joe Hwang,“Synergetic effect of water-in-bisalt electrolyte and hydrogen-bond rich additive improving the performance of aqueous batteries”,JOURNAL OF POWER SOURCES,511,pp.230413-1,pp.230413-9,2021,【SCIE ＆EI 】

[29]Chelladurai Karuppiah, Shimelis Lemma Beshahwured, Yi-Shiuan Wu, Lakshmipriya Musuvadhi Babulal, Kumlachew Zelalem Walle, Hoai Khang Tran, She-Huang Wu, Rajan Jose, and Chun-Chen Yang,“Patterning and a Composite Protective Layer Provide Modified Li Metal Anodes for Dendrite-Free High-Voltage Solid-State Lithium Batteries”,ACS APPLIED ENERGY MATERIALS,4,（10）,pp.11248,pp.11257,2021,【SCIE ＆EI 】

[30]Tadesu Hailu Mengesha, Shimelis Lemma Beshahwured, She-Huang Wu, Yi-Shiuan Wu, Rajan Jose, Shingjiang Jessie Lue, and Chun-Chen Yang,“Freestanding Trilayer Hybrid Solid Electrolyte with Electrospun Interconnected Al-LLZO Nanofibers for Solid-State Lithium-Metal Batteries”,ACS APPLIED ENERGY MATERIALS,4,（12）,pp.14554,pp.14574,2021,【SCIE ＆EI 】

[31]Eyob Belew Abebe, Chun-Chen Yang, She-Huang Wu, Wen-Chen Chien, and Ying-Jeng James Li,“Effect of Li Excess on Electrochemical Performance of Ni-Rich LiNi0.9Co0.05Mn0.05O2 Cathode Materials for Li-Ion Batteries”,ACS APPLIED ENERGY MATERIALS,4,（12）,pp.14295,pp.14308,2021,【SCIE ＆EI 】

[32]Shimelis Lemma Beshahwured, Yi-Shiuan Wu, Thi BeTa Truong, Rajan Jose, Chun-Chen Yang,“A modified trilayer membrane for suppressing Li dendrite growth in all-solid-state lithium-metal batteries”,CHEMICAL ENGINEERING

JOURNAL,426,pp.131850-1,pp.131850-16,2021,【SCIE ＆EI 】

[33]Mohamed M. Abdelaal , Tzu-Cheng Hung, Saad Gomaa Mohamed, Chun-Chen Yang, Huei-Ping Huang, Tai-Feng Hung 1,*,“A Comparative Study of the Influence of Nitrogen Content and Structural Characteristics of NiS/Nitrogen-Doped Carbon Nanocomposites on Capacitive Performances in Alkaline Medium”,NANOMATERIALS,11,（7）,pp.1867-1,pp.1867-14,2021,【SCIE ＆EI 】

[34]Sharmila Chandrasekaran, Elangovan Arumugam, Chelladurai Karuppiahb, Sudha Karuppaiah, Ahmed S. Haidyrah, Bhuvaneswari Chandran, Chun-Chen Yang,“A novel cobalt tungstate and reduced graphene oxide composite for hydrogen evolution reaction in acid medium”,MATERIALS LETTERS,300,pp.130274-1,pp.130274-4,2021,【SCIE ＆EI 】

[35]Chelladurai Karuppiah, Krishnan Venkatesh, Li-Fan Hsu, Prabhakarn Arunachalam, Chun-Chen Yang, Sayee Kannan Ramaraj, Rajabathar Jothi Ramalingam, Selvaraj Arokiyaraj, Hamad A. Al-Lohedan,“An improving aqueous dispersion of polydopamine functionalized vapor grown carbon fiber for the effective sensing electrode fabrication to chloramphenicol drug detection in food samples”,MICROCHEMICAL JOURNAL,170,pp.106675-1,pp.106675-8,2021,【SCIE ＆EI 】

[36]Sivakumar Musuvadhi Babulala, Krishnan Venkatesh, Shen-Ming Chen, Sayee Kannan Ramaraj, Chun-Chen Yang,“Fe doped NiO incorporated porous carbon hybrid electrocatalyst: A state of the art analysis for the selective sensing of acetaminophen in biological and pharmaceutical samples”,JOURNAL OF ALLOYS AND COMPOUNDS,876,pp.160215-1,pp.160215-13,2021,【SCIE ＆EI 】

[37]Song-Jeng Huang, Sathiyalingam Kannaiyan, Krishnan Venkatesh, Srikanth Cheemalapati, Ahmed S. Haidyrah, Sayee Kannan Ramaraj, Chun-Chen Yang, Chelladurai Karuppiah,“Synthesis and fabrication of Ni-SiO2 nanosphere-decorated multilayer graphene nanosheets composite electrode for highly sensitive amperometric determination of guaifenesin drug”,MICROCHEMICAL JOURNAL,167,pp.106325-1,pp.106325-9,2021,【SCIE ＆EI 】

[38]BeTa Thi Truong, Yi-Shiuan Wu, Tai-Feng Hung, Wen-Chen Chien, She-Huang Wu, Rajan Jose, Shingjiang Jessie Lue, Chun-Chen Yang,“The effect of lithium-excess on Ni-rich LiNi0.6Co0.2Mn0.2O2 cathode materials prepared by a Taylor flow reactor”,ELECTROCHIMICA ACTA,391,pp.138982-1,pp.138982-13,2021,【SCIE ＆EI 】

[39]Bincy Lathakumary Vijayan, Izan Izwan Misnon, Gopinathan M. Anilkumar, Chun-Chen Yang, Rajan Jose,“Void-size-matched hierarchical 3D titania flowers in porous carbon as an electrode for high-density supercapacitive charge storage”,JOURNAL OF ALLOYS AND COMPOUNDS,858,pp.157649-1,pp.157649-12,2021,【SCIE ＆EI 】

[40]Ahmed S. Haidyrah, Natarajan Karikalan, Raj Karthik, Jae-Jin Shim, Chun-Chen Yang, Chelladurai Karuppiah,“Surface sulfuration of antimony oxide enhances the electrochemical determination of acebutolol in biomedical samples”,JOURNAL OF ELECTROANALYTICAL CHEMISTRY,894,pp.115371-1,pp.115371-7,2021,【SCIE ＆EI 】

三、研討會論文

[1]Mohamed M. Abdelaal，Tzu-Cheng Hung，Tai-Feng Hung,“Polymer-derived Nitrogen-doped Carbon Materials with Hierarchically Porous Architectures toward Capacitive Performances for Lithium-ion Capacitors”,第七屆前瞻能源陶瓷材料與永續能源低碳社會應用科技國際研討會ACTSEA 2021,台北市,中華民國 ,2021/11/15,【國際學術研討會】

[2]Tzu-Cheng Hung ， Mohamed M. Abdelaal ， Tai-Feng Hung,“Achieving Enhanced Electrocatalytic Performance towards Hydrogen Evolution of Nickel Sulfide Nanostructure via Incorporating Porous Carbon”,第十六屆全國氫能與燃料電池學術研討會暨第八屆台灣能源學會年會,台南市,中華民國 ,2021/9/3,【國內學術研討會】

四、研究及產學合作計畫

項次	主持人	計畫名稱	委託單位	起訖日期	總計	政府	企業	本校
1	洪太峰	高效鹼金屬離子電容器核心材料開發與儲能機制研究(1/3)	國科會	110/01/01 110/12/31	1,400,000	1,400,000	0	0
2	楊純誠	使用不同反應器開發合成高能量密度高鎳鎳鈷鋁(NCA)陰極材料及組成全電池與電性分析檢測(3/3)	國科會	110/08/01 111/07/31	1,053,000	1,053,000	0	0
3	洪太峰	薄型可撓塑料極板開發與性質檢測 一式	行政院原子能委員會核能研究所	110/04/15 110/10/31	570,000	570,000	0	0
4	楊純誠	製備高穿透全固態電解質應用於電致變色玻璃技術開發計畫	宏益玻璃科技股份有限公司	110/08/01 111/07/31	2,000,000	0	2,000,000	0
5	楊純誠	壓克力粘著劑物、化性分析與 2032 鈕釦型電池組裝、電性檢測分析	南亞塑膠工業股份有限公司	110/04/01 111/03/31	1,000,000	0	1,000,000	0
6	楊純誠	銅箔鍍鉻之電化學性分析與抗氧化性質改善	南亞塑膠工業股份有限公司	110/08/01 112/07/31	2,000,000	0	2,000,000	0

項次	主持人	計畫名稱	委託單位	起訖日期	總計	政府	企業	本校
7	洪太峰	鋁箔袋型超電容儲能元件設計製作與性能分析驗證	財團法人工業技術研究院	110/04/15 110/12/25	700,000	0	700,000	0
8	洪太峰	「電網級儲能次領域」前瞻技術研析	財團法人工業技術研究院	110/07/07 110/10/15	100,000	0	100,000	0
合計					8,823,000	3,023,000	5,800,000	0

五、專利

項次	發明人	專利權人	專利名稱	類別	證書字號	專利國家	生效日期
1	楊純誠	明志科技大學	全固態鋰電池之鋰箔陽極的製備方法	發明專利	I750103	國內	110/12/11
2	楊純誠	明志科技大學	複合式固態電解質膜之製備方法、及使用該複合式固態電解質膜之全固態 鋰電池	發明專利	I725904	國內	110/04/21
3	楊純誠	明志科技大學	用於鋰離子電池之陽極的多孔性複合材料的製備方法	發明專利	I716336	國內	110/01/11

六、研究生論文

項次	研究生姓名	論文題目	指導教授
1	YOSEF NIKODIMOS ASGEDOM	Lithium Germanium Phosphate Based Hybrid Solid Electrolytes for Lithium-ion Battery	楊純誠
2	馬諾	A Structural, Thermal and Electrochemical Investigation of Ni-Rich Layered LiNixCoyAl1-x-yO2 Composite Cathodes Synthesized by Couette-Taylor Flow for Li-ion Batteries	楊純誠
3	佩雅	Synthesis of High Scalable, Uniform, High Energy Density LiNi0.8Co0.1Mn0.1O2 Positive Active Material and their Surface Modification for Lithium-ion Battery	楊純誠


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