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Professor

B.S. in Chemical Engineering

Tunghai University, Taiwan, 1986

M.S. in Materials Science and Engineering

Cornell University, USA, 1991

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Research and Professional Interests

Study of Conducting and Bio Polymers

Study of Self-Assembly Nanostructure

Structure-Property Relation

Rubbers and Filled Rubber Systems

Journal Papers

1. Chueh-Hung Wu, Ming-Kuan Sun, Jay Shieh, Chuin-Shan Chen, Chang-Wei Huang, **Chi-An Dai**, Shu-Wei Chang, Wen-Shiang Chen, Tai-Horng Young, "Ultrasound-responsive NIPAM-based hydrogels with tunable profile of controlled release of large molecules" *Ultrasonics*, 83, 157, 2018. (SCI)
2. Cheng-Hsi Weng, Cheng-Chuan Lin, Fu-Cheng Tsai, **Chi-An Dai**, Fu-Ling Yang, Wen-Pin Shih,* and Pei-Zen Chang "Photo-controllable contact angle hysteresis on an artificial Azo-IPN petal" *Mater. Lett.* 218, 81, 2018. (SCI) (IF: 2.572, 2016)
3. Yu-Ping Lee, Chi-Ju Chiang, Pin-Chia Jen, Bo-Ting Chou, Leeyih Wang, Yao-Yi Cheng, Yi-Huan Lee,* Yi-Fan Chen, Chih-Chen Hsieh, and **Chi-An Dai*** "Synergistic In Situ Hybrid Synthesis of Highly Crystalline P3HT/ZnO Nanowires at Elevated Pressures" *ACS Appl. Energy. Mater.* 1, 1930, 2018. (SCI) (IF:5.711)
4. Yu-Ping Lee, Hsin-Yu Liu, Po-Chun Lin, Yi-Huan Lee, Leng-Rong Yu, Chih-Chen Hsieh, Po-Jen Shih, Wen-Pin Shih, I-Jong Wang,* Jia-Yush Yen, and **Chi-An Dai*** "Facile Fabrication of Superporous and Biocompatible Hydrogel Scaffolds for Artificial Corneal Periphery" *Colloids and Surfaces B: Biointerfaces*, 175, 26, 2019. (SCI) (IF: 3.997)
5. Chien-Hsin Wu, Yu-Ru Lin, Shih-Chieh Yeh, Ya-Chin Huang, Kuo-Hua Sun, Yeng-Fong Shih, Wen-Chiung Su, **Chi-An Dai**, Shenghong A. Dai,* and Ru-Jong Jeng* "A Facile Synthetic Route to Ether Diols Derived from 1,1-Cyclopentylenebisphenol for Robust Cardio-Type Polyurethanes" *Macromolecules*, 52, 959, 2019. (SCI) (IF: 5.985)
6. Yu-Ping Lee, Ming-Wei Liu, Jia-Kuan Qin, Yi-Huan Lee,* Yi-Lung Yang, Leeyih Wang, Yao-Yi Cheng, Yi-Fan Chen, Wen-Yu Liu, Chih-Chen Hsieh, and **Chi-An Dai*** "Long-Term Thermally Stable Nanoconfining Networks for Efficient Fully Conjugated Semicrystalline/Amorphous Diblock Copolymer Photovoltaics" *Org. Electron.* 69, 263, 2019. (SCI) (IF: 3.70)
7. Yu-Jui Wang, **Chi-An Dai**, Jia-Han Li* "Numerical Study of Tunable Photonic Nanojets Generated by Biocompatible Hydrogel Core-Shell Microspheres for Surface-enhanced Raman Scattering Applications" *Polymers* 11, 431, 2019. (SCI) (IF: 4.329)
8. Yoshihiro Ohta, Yuji Abe, Kenta Hoka, Eisuke Baba, Yu-Ping Lee, **Chi-An Dai**, Tsutomu Yokozawa,* "Synthesis of Amphiphilic, Janus Diblock Hyperbranched Copolyamides and Their Self-Assembly in Water" *Polymer Chemistry*, 10, 4246, 2019. (SCI) (IF: 5.582)
9. Yu-Ping Lee, Chieh-Chuan Lin, Chih-Chung Hsiao, Po-An Chou, Yao-Yi Cheng, Chih-Chen Hsieh,* and **Chi-An Dai*** "Nanopiezoelectric Devices for Energy Generation Based on ZnO Nanorods/Flexible-Conjugated Copolymer Hybrids Using All-Wet Coating Processes" *Micromachines*, 11, 14, 2020. (SCI) (IF:3.49)

10. Ying-Chi Huang, Yu-Hsiang Huang, Li-Yun Chen, **Chi-An Dai**, Shenghong A. Dai, Ying-Hsiao Chen, Chien-Hsin Wu,* and Ru-Jong Jeng* “Robust thermoplastic polyurethane elastomers prepared from recycling polycarbonate” *Polymer*, 212, 123296, 2021. (SCI) (IF: 4.430)
11. Hsien-Chi Lai, Yu-Jui Wang, **Chi-An Dai**, Chun-Hway Hsueh, Shu-Jen Wang, and Jia-Han Li* “Kinetin Detection Enhancement Based on Photonic Nanojets and Surface-enhanced Raman Scattering” *IEEE J. Sel. Top. Quantum Electron.* 27, 7100208, 2021. (SCI) (IF: 4.544)
12. Yu-Chi Ma, Chang-Tsung Hsieh, Yu-Hsiang Lin, **Chi-An Dai** and Jia-Han Li* “Numerical Study of Customized Artificial Cornea Shape by Hydrogel Biomaterials on Imaging and Wavefront Aberration” *Polymers*, 13, 4372, 2021. (SCI) (IF: 4.329)
13. Hsuan Lu, Chih-Hong Chang, Bo-Rong Wu, Nien-Chi Wu, Jun-Zhi Liang, **Chi-An Dai**, and Arnold C.-M. Yang* “Reaching Nearly 100% Quantum Efficiencies in Thin Solid Films of Semiconducting Polymers via Molecular Confinements under Large Segmental Stresses” *ACS Nano*, 16, 8273, 2022. (SCI) (IF: 16.24)
14. Yoshihiro Ohta, Chih-Feng Huang, Yi-Huan Lee, **Chi-An Dai**,* and Tsutomu Yokozawa,* “Synthesis of Well-Defined Block Copolymers of Hyperbranched Polyamide and Polystyrene and Their Micelle-to-Vesicle Transformation in Organic Solvents” *Macro. Chem. Phys.* 224, 2200298, 2023. (SCI) (IF: 2.527)

Conference Papers

1. “Self-Assembly and Phase Transformations of All-Conjugated Poly(2,5-dihexyloxy-p-phenylene)-b-poly(3-hexylthiophene) Block Copolymer System” 李宜桓*, 許印天, 沈情, 李育凭, 戴子安 · 台灣高分子年會, Jan 12-13, 2018.
2. “Self-Assembly of Novel Supramolecular Rod-Comb Block Copolymer System” 李宜桓*, 莊延年, 張鈞傑, 戴子安 · 台灣高分子年會, Jan 12-13, 2018.
3. “The Grignard Metathesis Polymerization of Conjugated Polymers/Copolymers and its Applications in Solar Cells” 戴子安 · 台灣高分子年會, Jan 12-13, 2018.
4. “Nanoscale Self-Arrangement Approach for Fabricating Organic Solar Cells” **Chi-An Dai**, The 5th International Conference on Electronic Materials and Nanotechnology for Green Environment (ENGE2018), Jeju, Korea, Nov. 14, 2018
5. “Design and Fabrication of Biocompatible Artificial Corneal Hydrogel for Additive Manufacturing” **Chi-An Dai**, The 15th International Conference on Automation Technology, Taichung, Taiwan, Dec. 6-8, 2018.
6. “Nanoscale Self-Arrangement Approach for Fabricating Organic Solar Cells” **Chi-An Dai**, Sogang University-NTU ChemE Symposium on Nano & Bio Engineering, Taipei, Taiwan Dec. 14, 2018.
7. "Synergistic Improvements in the pH Buffering of ZnO nanorod Composite Films" Yu-Ping Lee, Chieh-Chuan Lin, Yi-Huan Lee, **Chi-An Dai**, the 5th International Conference on Electronic Materials and Nanotechnology for Green Environment, November 2018, Jeju, Korea.

8. "Facile in-Situ Synthesis of Highly Conductive EDOT/Aniline Copolymer Films" Yu-Ping Lee, Chieh-Chuan Lin, Yi-Huan Lee, **Chi-An Dai**, the 5th International Conference on Electronic Materials and Nanotechnology for Green Environment, November 2018, Jeju, Korea.
9. "Synthesis of Amphiphilic All-Conjugated Diblock Copolymers and Their Applications in Organic/Inorganic Hybrid System" Ping-Yi Lin, Yu-Ping Lee, Yi-Huan Lee, **Chi-An Dai**, Annual Meeting of the Polymer Society, January 2019, Southern Taiwan University of Science and Technology, Tainan, Taiwan.
10. "Design and Fabrication of Biocompatible Artificial Corneal Hydrogel for Additive Manufacturing" Jia-Kuan Qin, Yu-Ping Lee, Po-An Chou, Leng-Rong Yu, **Chi-An Dai**, Annual Meeting of the Polymer Society, January 2019, Southern Taiwan University of Science and Technology, Tainan, Taiwan.
11. "Synthesis of porous hydrogel scaffolds for artificial corneal skirt by solvent-induced phase separation" Yu-Ping Lee, Hsin-Yu Liu, Po-Chun Lin, Yi-Huan Lee, Leng-Rong Yu, Chih-Chen Hsieh, Po-Jen Shih, Wen-Pin Shih, I-Jong Wang, Jia-Yush Yen, **Chi-An Dai**, Annual Meeting of the Polymer Society, January 2019, Southern Taiwan University of Science and Technology, Tainan, Taiwan.
12. "Formulation development of stretchable conductive copper paste" Che-Min Chao, Wei-Hao Chou, Yu-Ping Lee, Yao-Yi Cheng, **Chi-An Dai**, Annual Meeting of the Polymer Society, January 2019, Southern Taiwan University of Science and Technology, Tainan, Taiwan.
13. "Emulsion Synthesis of Nanoparticles Containing PEDOT Using Conducting Polymeric Surfactant: Synergy for Colloid Stability and Intercalation Doping" Kai-ching Chuang, Chun-Jie Chang, Hung-Yu Chi, Hung-Ta Chien, Wei-Fang Su, Wen-Yen Chiu, **Chi-An Dai**, Annual Meeting of the Polymer Society, January 2019, Southern Taiwan University of Science and Technology, Tainan, Taiwan.
14. "Devising Organic Photovoltaics: Self-Organization in Nanoscale" **Chi-An Dai**, Yu-Ping Lee, Chi-Ju Chiang, and Yi-Huan Lee, The 2nd Sogang University-NTU ChemE Symposium on Nano & Bio Engineering, Seoul, South Korea Apr 3-5, 2019.
15. "Self-Organization Strategy for Organic Photovoltaic Application" **Chi-An Dai***, Yu-Ping Lee, Chi-Ju Chiang, and Yi-Huan Lee, National Institute for Materials Science, Tsukuba, Japan Jan. 15, 2020.
16. "Biocompatible Hybrid Hydrogels for Artificial Corneas by Additive Manufacturing" Shih-Lun Wu, Jhin-Syuan Liang, Yu-Ping Lee, and Chi-An Dai, * The 18th International Conference on Automation Technology, Kimmen, Taiwan, Nov. 12-14, 2021.
17. "Facile fabrication of anion exchange membranes for water electrolysis based on self-assembling block copolymers" Shao-Chi Huang, Yu-Ping Lee, Chi-An Dai, * Kuan-Ting Lai and Chia-Kan Hao, 2021 Materials Research Society-Taiwan International Conference (2021 MRSTIC), Nov. 13-17, 2021.
18. "Homogeneous and Heterogeneous synthesis of anion exchange membranes for water electrolysis based on self-assembling block copolymers" Shao-Chi Huang, Yu-Ping Lee, Chi-An Dai, * Kuan-Ting Lai and Chia-Kan Hao, Annual Meeting of the Polymer Society in Taiwan, National Chin-Yi University of Technology, Taichung, Taiwan, Jan. 18-19, 2022.
19. "Synthesis of Polyacrylate Resin by Suspension Polymerization in the Development of Novel Highly-Conductive Die Attach Film" Cheng-Ti Hu, Zhong-Lun Ye, and Chi-An

Dai,* Annual Meeting of the Polymer Society in Taiwan, National Chin-Yi University of Technology, Taichung, Taiwan, Jan. 18-19, 2022.

20. "Improving Dynamic Mechanical Property of Green Tire Tread Compounds by Using Polyethylene Glycol (PEG)" Heng-Yi Lin and Chi-An Dai,* Annual Meeting of the Polymer Society in Taiwan, Chang Gung University, Taoyuan, Taiwan, Jan. 17-18, 2023.
21. "Liquid Molding Compounds for 3D Electronic Packaging" Chiao-Yin Yang and Chi-An Dai,* Annual Meeting of the Polymer Society in Taiwan, Chang Gung University, Taoyuan, Taiwan, Jan. 17-18, 2023.
22. "Synthesis of P(MMA-BA)/PIA Core/Shell Latex Particles Using Emulsion Polymerization" Yu-Min Chou and Chi-An Dai,* Annual Meeting of the Polymer Society in Taiwan, Chang Gung University, Taoyuan, Taiwan, Jan. 17-18, 2023.
23. "Synthesis and Characterization of π -Conjugated Alternating Copolymer by Using Grignard Metathesis Polymerization" Lien-Wei Lee and Chi-An Dai,* Annual Meeting of the Polymer Society in Taiwan, Chang Gung University, Taoyuan, Taiwan, Jan. 17-18, 2023.
24. Study of New Epoxy/Acrylate Composites as Die-Attach Films for Electronic Packaging" Cheng-Ti Hu and Chi-An Dai,* Annual Meeting of the Polymer Society in Taiwan, Chang Gung University, Taoyuan, Taiwan, Jan. 17-18, 2023.

Patents

1. **Chi-An. Dai**, Andy H. Tsou, Stephen C. Meissner, "Method for Engagement Cutting an Imaging Element" US Patent No. 6431037, 2002, 2002-2021.
2. 林唯芳、何俊智、**戴子安**，"含均勻分散奈米粒子之共聚高分子及包含其之奈米電子傳輸材料與光電元件" 中華名國專利證號-發明第 1-271876 號，2007/1/21-2025/5/26.
3. Wei-Fang Su, **Chi-An Dai**, and Chun-Chih Ho "Composite Material with Electron-Donating and Electron-Accepting Property, Method for Forming the Same, and Their Application" US Patent 7,704,415 B2, 2010.
4. Wen-Shiang Chen, Hao-Li Liu, Yen-Tung Huang, Chien-Ching Ma, Wei-Bor Tsai, Wen-Pin Shih, and **Chi-An Dai**, "Artificial Sphincter System" US Patent 7,955,389B2, 2011.
5. 邱文英、**戴子安**、李佳芬、何國川、陳文章、鄭竹芸、梁乃允、張勝善、鐘裕杰，"酸鹼緩衝顆粒"，中華民國專利證號-發明第 I-353371 號，2011。
6. **戴子安**、顏家鈺、施文彬、陳建鈞，"具有奈米二氧化鈦粒子之光起始高分子水晶體材料及其製備方式"，中華民國，發明專利第 I-407980 號，2013。
7. 林唯芳、**戴子安**、顏唯哲，"嵌段式共聚物及其形成方法"，中華民國，發明專利第

I-418569 號，2013。

8. 邱文英，何國川，**戴子安**，陳文章，吳杰翰，黃雅君，周奕辰 “具有噻吩結構之導電高分子顆粒及其形成方法” 中華民國，發明專利第 I-400237 號，2013
9. **戴子安**，顏家鈺，施文彬，陳建鈞，“具有奈米二氧化鈦粒子之光起始高分子水晶體材料及其製備方式” 中華民國，發明專利第 I-407980 號，2013。

