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❖ Education

Ph.D. (2009 - 2014)	POSTECH, Korea Department of Chemical Engineering
B.S. (2004-2009)	Kyungpook National University, Korea Department of Polymer Science & Engineering

❖ Research Experience

Assistant Professor (2020 – present)	Kyungpook National University, Korea Department of Hydrogen & Renewable Energy
Research Associate (2015 - 2020)	Imperial College London, United Kingdom Department of Chemistry (Advisor: Prof. James R. Durrant)
Postdoctoral Researcher (2014 - 2015)	POSTECH, Korea Department of Chemical Engineering (Advisor: Prof. Chan Eon Park)

❖ Activities

1. Member of Materials Research Society
2. Member of The Polymer Society of Korea
3. Member of The Korean Society of Industrial and Engineering Chemistry
4. Member of The Korean Information Display Society

❖ Awards and Honors

1. Outstanding Research Professor, Qualitative Performance (JCR 1%) (2022)
2. Shortlisted Participants, Asian Deans' Forum 2018, the rising stars women in engineering workshop, HKUST, Hong Kong (2018)
3. Best Poster Award - The 24th Synchrotron Radiation User's Workshop & KOSUA Meeting,

South Korea (2012)

❖ Research Interest

1. Charge carrier dynamics in non-fullerene acceptors-based bulk heterojunction cells
 - Photo physical investigation on charge generation and separation with femtosecond transient absorption spectroscopy (fs-TAS) and microsecond transient absorption spectroscopy (μ s-TAS)
 - Photo physical investigation on charge transport and collection with transient photovoltage (TPV) and charge extraction (CE)
 - Investigation on electrical performance of organic photovoltaic devices with Incident photon-to-current efficiency (IPCE) measurement and space charge limited current (SCLC)
 - Environmental stability measurement with LED light soaking
2. Studies on organic semiconductor thin films
 - Morphological Investigation of blends of conjugated polymer:fullerene derivative with atomic force microscopy (AFM) and transmission electron microscopy (TEM)
 - Characterization of nano-scale structure in semiconductor thin films on PEDOT:PSS/Metal oxide surface with synchrotron X-ray sources, Grazing-incidence wide-angle scattering (GIWAXS)
3. Organic photocathodes and organic particles for water splitting toward proton evolution
 - Investigation on the structures of organic bulk heterojunction layer-based photocathodes
 - Studies on charge carrier dynamics of organic nano-micro particles including carbon nitrides and polymers in water

❖ Publication

1. Qiao He, Aniruddha Basu, **Hyojung Cha**, Matyas Daboczi, Julianna Panidi, Luxi Tan, Xiantao Hu, Chi Cheng Huang, Bowen Ding, Andrew J. P. White, Ji-Seon Kim, James R. Durrant, Thomas D. Anthopoulos, and Martin Heeney* "Ultra-Narrowband Near-Infrared Responsive J-Aggregates of Fused Quinoidal Tetracyanoindacenodithiophene", **Advanced Materials**, DOI: 10.1002/adma.202209800
2. Sanghyeok An, Ziang Wu, Hayoung Jeong, Juhyeok Lee, Sang Young Jeong, Wonjong Lee, Sunkyu Kim, Jeong Woo Han, Jongchul Lim, **Hyojung Cha**,* Han Young Woo,* and Dae Sung Chung* "Synergistic contribution of oligo(ethylene glycol) and fluorine substitution of conjugated polymer photocatalysts towards solar driven sacrificial hydrogen evolution", **Small**, DOI: 10.1002/smll.202204905

3. Juyeon Han, Junyeong Lee, Eunbin Jang, Myeongjin Kim, **Hyojung Cha**, Sungjin Jo, Jeeyoung Yoo, "Portable integrated photo-charging storage device operating at 3 V" **Chemical Engineering Journal**, 450, 138463
4. Chieh-Ting Lin,* Cheng-Tien Hsieh, Thomas J. Macdonald, Jia-Fu Chang, Po-Chen Lin, **Hyojung Cha**, Ludmilla Steier, Andrew Wadsworth, Iain McCulloch, Chu-Chen Chueh,* James R Durrant "Water-insensitive Engineering of Electron Transport and Photoactive Layers for Improved Underwater Stability of Organic Photovoltaics" **Advanced Functional Materials**, DOI: 10.1002/adfm.202203487
5. Hyun-woo Kim, **Hyojung Cha**, Yifan Li, Seul-Ong Kim, Yun-Hi Kim, Soon-Ki Kwon, "Synthesis and characterization of polythiophene containing side chain electron acceptor for OPV" **Molecular Crystals and Liquid Crystals** (2022)
6. Sanghyeok An, Syed Zahid Hassan, Jin-Woo Jung, **Hyojung Cha***, Chang-Hee Cho, and Dae Sung Chung*, "Covalent Networking of a Conjugated-Polymer Photocatalyst to Promote Exciton Diffusion in the Aqueous Phase for Efficient Hydrogen Production" **Small Methods** 2200010 (2022)
7. Mohammed Azzouzi,‡* Nathaniel P. Gallop,‡ Flurin Eisner, Jun Yan, Xijia Zheng, **Hyojung Cha**, Qiao He, Zhuping Fei, Martin Heeney, Artem A. Bakulin, Jenny Nelson*, "Reconciling models of interfacial state kinetics and device performance in organic solar cells: impact of the energy offsets on the power conversion efficiency" **Energy & Environmental Science** 15, 1256-1270 (2022)
8. Jan Kosco*, Soranyel Gonzalez-Carrero, Calvyn T. Howells, Weimin Zhang, Maximilian Moser, Rajendar Sheelamanthula, Benjamin Willner, Tania C. Hidalgo, Hendrik Faber, Balaji Purushothaman, Michael Sachs, **Hyojung Cha**, Thomas Anthopolous, Sahika Inal, James R. Durrant, Iain McCulloch*, "Oligoethylene glycol sidechains increase charge generation in organic semiconductor nanoparticles forenhanced photocatalytic hydrogen evolution." **Advanced Materials** 2105007 (2022)
9. Jiaying Wu, **Hyojung Cha***, Tian Du, Yifan Dong, Weidong Xu, Chieh-Ting Lin and James R. Durrant*, "A Comparison of Charge Carrier Dynamics in Organic and Perovskite Solar Cells." **Advanced Materials** 34, 2, 2101833 (2022)
10. Andrew J. Clarke, Joel Luke, Rico Meitzner, Jiaying Wu, Yuming Wang, Harrison K.H. Lee, Emily M. Speller, Helen Bristow, **Hyojung Cha**, Michael J. Newman, Katherine Hooper, Alex Evans, Feng Gao, Harald Hoppe, Iain McCulloch, Ulrich S. Schubert, Trystan M. Watson, James R. Durrant, Wing C. Tsoi, Ji-Seon Kim, Zhe Li "Non-fullerene acceptor photostability and its impact on organic solar cell lifetime" **Cell Reports Physical Science** 2, 7, 100498 (2021)
11. G. Murali, Jeevan Kumar Reddy Modigunta, Seongmin Park, Seongeun Lee, James R. Durrant, **Hyojung Cha***, Tae Kyu An,* and Insik In,* "Simultaneously Enhancing Light Absorption and Prolonging Charge Separation in Carbon Quantum Dots via Cl-doping for Efficient Visible-Light-Driven Photocharge-Transfer Reactions" **ACS Applied Materials & Interfaces** 13, 29, 34648–34657 (2021)
12. **Hyojung Cha***, Jiaying Wu, "Understanding What Determines the Organic Solar Cell Stability" **Joule** 5, 6, 1322-1325 (2021)

13. Minkyu Kyeong[†], Jinho Lee[†], Matyas Daboczi, Katherine Stewart, Huifeng Yao, **Hyojung Cha**, Kwanghee Lee, Ji-Seon Kim, James R. Durrant, Sukwon Hong, "Organic Cathode Interfacial Materials for Non-Fullerene Organic Solar Cells", *Journal of Materials Chemistry A* 9, 13506-13514 (2021)
14. Yifan Dong, **Hyojung Cha**,* Helen L. Bristow, Jinho Lee, Aditi Kumar, Pabitra Shakya Tuladhar, Iain McCulloch, Artem A. Bakulin, and James R. Durrant*, "Correlating Charge-Transfer State Lifetimes with Material Energetics in Polymer:non-Fullerene Acceptor Organic Solar Cells" *J. Am. Chem. Soc.* 143, 20, 7599-7603 (2021) (**Supplementary Cover Image**)
15. Saurav Limbu, Kyung-Bae Park, Jiaying Wu, **Hyojung Cha**, Sungyoung Yun, Seon-Jeong Lim, Hao Yan, Joel Luke, Gihan Ryu, Chul-Joon Heo, Sunghan Kim, Yong Wan Jin, James R Durrant, Ji-Seon Kim "Identifying the Molecular Origins of High-Performance in Organic Photodetectors Based on Highly Intermixed Bulk Heterojunction Blends" *ACS Nano* 15, 1, 1217–1228 (2021)
16. **Hyojung Cha***, Yizhen Zheng, Yifan Dong, Hyun Hwi Lee, Jiaying Wu, Helen Bristow, Jiangbin Zhang, Harrison Ka Hin Lee, Wing C. Tsoi, Artem Bakulin, Iain McCulloch, James R. Durrant, Exciton and Charge Carrier Dynamics in Highly Crystalline PTQ10:IDIC Organic Solar Cells. *Advanced Energy Materials*, 10, 38, 2001149 (2020)
17. **Hyojung Cha**, Jiaqiang Li, Yifan Li, Seul-Ong Kim, Yun-Hi Kim, Soon-Ki Kwon, "Effects of Bulk heterojunction Morphology Control via Thermal Annealing on the Fill Factor in Anthracene Based-Polymer Solar Cells", *Macromolecular Research*, 28, 820–825 (2020)
18. Christopher D. Windle, Alexander Wieczorek, Lunqiao Xiong, Michael Sachs, Carlota Bozal-Ginesta, **Hyojung Cha**, Jeremy K. Cockcroft, James Durrant and Junwang Tang, "Covalent grafting of molecular catalysts on C₃N_xH_y as robust, efficient and well-defined photocatalysts for solar fuel synthesis", *Chemical Science*, 11, 8425-8432 (2020)
19. Jiaying Wu, Jinho Lee, Yi-Chun Chin, Huifeng Yao, **Hyojung Cha**, Joel Luke, Jianhui Hou, Ji-Seon Kim, James Durrant, "Exceptionally low charge trapping enables highly efficient organic bulk heterojunction solar cells", *Energy & Environmental Science*, 13, 2422-2430 (2020)
20. Michael Sachs, **Hyojung Cha**, Jan Kosco, Catherine M Aitchison, Laia Francàs, Sacha Corby, Chao-Lung Chiang, Anna A Wilson, Robert Godin, Alexander Fahey-Williams, Andrew I Cooper, Reiner Sebastian Sprick, Iain McCulloch, James R Durrant , "Tracking charge transfer to residual metal clusters in conjugated polymers for photocatalytic hydrogen evolution", *J. Am. Chem. Soc.* 142, 34, 14574–14587 (2020)
21. Jinho Lee, **Hyojung Cha**, Huifeng Yao, Jianhui Hou, Yo-Han Suh, Soyeong Jeong, Kwanghee Lee, James R Durrant, "Toward Visibly Transparent Organic Photovoltaic Cells Based on a Near-Infrared Harvesting Bulk Heterojunction Blend", *ACS Applied Materials & Interfaces*, 12, 29, 32764 (2020)
22. Jinho Lee, Jong-Hoon Lee, Huifeng Yao, **Hyojung Cha**, Soonil Hong, Seongyu Lee, Jehan Kim, James R. Durrant, Jianhui Hou and Kwanghee Lee, "Efficient and photostable ternary organic solar cells with a narrow band gap non-fullerene acceptor and fullerene additive", *Journal of Materials Chemistry A*, 8, 6682-6691 (2020)

23. Jan Kosco, Matthew Bidwell, **Hyojung Cha**, Tyler Martin, Calvyn T. Howells, Michael Sachs, Dalaver Anjum, Sandra Gonzalez Lopez, Lingyu Zou, Andrew Wadsworth, Weimin Zhang, Lisheng Zhang, Rachid Sougrat, Frederic Laquai, Dean DeLongchamp, James R. Durrant, Iain McCulloch, "Enhanced photocatalytic hydrogen evolution from organic semiconductor heterojunction nanoparticles", *Nature Materials*, 19, 559–565 (2020)
24. Min Jae Sung†, Jisu Hong†, **Hyojung Cha**†, Yifei Jiang, Chan Eon Park, James R Durrant, Tae Kyu An, Soon-Ki Kwon, Yun-Hi Kim, "Acene-Modified Small-Molecule Donors for Organic Photovoltaics" (†equally contributed) *Chemistry A European Journal*, 25, 53, 12316-12324 (2019)
25. **Hyojung Cha**, George Fish, Joel Luke, Ahmad Alraddadi, Hyun Hwi Lee, Weimin Zhang, Yifan Dong, Laia Francas, Hou Lon Sou, Tian Du, Ji-Seon Kim, Martyn McLachlan, Iain McCulloch, James R. Durrant, "Suppression of Recombination Losses in Polymer:Non-Fullerene Acceptor Organic Solar Cells due to Aggregation Dependence of Acceptor Electron Affinity" *Advanced Energy Materials*, 1901254 (2019)
26. Jiaying Wu, Joel Luke, Harrison K. H. Lee, Pabitra Shakya Tuladhar, **Hyojung Cha**, Soo-Young Jang, Wing Chung Tsoi, Martin Heeney, Hongkyu Kang, Kwanghee Lee, Thomas Kirchartz, Ji-Seon Kim, James R. Durrant "Tail state limited photocurrent collection of thick photoactive layers in organic solar cells" *Nature Communication*, 10, 5159 (2019)
27. Min Jae Sung, Jisu Hong, **Hyojung Cha**, Yifei Jiang, Chan Eon Park, James R Durrant, Tae Kyu An, Soon-Ki Kwon, Yun-Hi Kim, "Acene-Modified Small-Molecule Donors for Organic Photovoltaics", *Chemistry–A European Journal*, 25, 12316 (2019)
28. Joshua P. Green, **Hyojung Cha**, Munazza Shahid, Adam Creamer, James R. Durrant, and Martin J. Heeney "Dithieno[3,2-*b*:2',3'-*d*]arsole-containing conjugated polymers in organic photovoltaic devices" *Dalton Transactions*, 48, 6676-6679 (2019)
29. Emily M. Speller, Nicholas Aristidou, Mark F. Wyatt, Laia Francàs, George Fish, **Hyojung Cha**, Harrison Ka Hin Lee, Joel Luke, Andrew Wadsworth, Iain McCulloch, Ji-Seon Kim, Saif A. Haque, James R. Durrant, Stoichko D. Dimitrov, Wing C. Tsoi, Zhe Li, "Toward Improved Environmental Stability of Polymer:Fullerene and Polymer:Non-fullerene Organic Solar Cells: A Common Energetic Origin of Light and Oxygen Induced Degradation" *ACS Energy Letters*, 4, 846–852 (2019)
30. Yifan Dong, **Hyojung Cha**, Jiangbin Zhang, Ernest Pastor, Pabitra Shakya Tuladhar, Iain McCulloch, James Durrant, and Artem Bakulin, "The Binding Energy and Dynamics of Charge-Transfer States in Organic Photovoltaics with Low Driving Force for Charge Separation" *The Journal of Chemical Physics*, 150, 104704 (2019)
31. **Hyojung Cha**, Ching-Hong Tan, Jiaying Wu, Yifan Dong, Weimin Zhang, Hu Chen, Sridhar Rajaram, K. S. Narayan, Iain McCulloch, James R. Durrant "An Analysis of the Factors Determining the Efficiency of Photocurrent Generation in Polymer:Nonfullerene Acceptor Solar Cells" *Advanced Energy Materials*, 8, 32, 1801537 (2018)
32. Jisu Hong,[§] Min Jae Sung,[§] **Hyojung Cha**,[§] Chan Eon Park, James Durrant, Tae Kyu An, Yun-Hi Kim, Soon-Ki Kwon "Understanding Structure-Property Relationships in All-Small-Molecule Solar Cells Incorporating a Fullerene or Nonfullerene Acceptor" ([§]These authors contributed equally to this work) *ACS Applied Materials & Interfaces*, 10, 42, 36037–36046 (2018)

33. **Hyojung Cha**, Scot Wheeler, Sarah Holliday, Stoichko Dimitrov, Andrew Wadsworth, Hyun Hwi Lee, Derya Baran, Iain McCulloch, James Durrant "Influence of Blend Morphology and Energetics on Charge Separation and Recombination Dynamics in Bulk Heterojunction Solar Cells incorporating a Non-fullerene Acceptor" **Advanced Functional Materials**, 17, 1704389 (2018)
34. Jisu Hong, Canjie Wang, **Hyojung Cha**, Hyung Nam Kim, Yebyeol Kim, Chan Eon Park, Tae Kyu An, Soon-Ki Kwon, Yun-Hi Kim, "Morphology Driven by Molecular Structure of Thiazole-Based Polymers for Use in Field-Effect Transistors and Solar Cells" **Chemistry – A European Journal**, 25, 649-656 (2018)
35. Laia Francas, Eric Burns, Ludmilla Steier, **Hyojung Cha**, Lluís Sola, Xiaoe Li, Pabitra Shakya, Roger Bofill, Jordi Garcia-Anton, Xavier Sala, James R. Durrant, "Rational design of a neutral pH functional and stable organic photocathode" **Chemical Communications**, 54, 5732-5735 (2018)
36. Kyunghun Kim, Jongwook Jeon, Yeon Hee Ha, **Hyojung Cha**, Chan Eon Park, Myounggon Kang, Heesauk Jhon, Soon-Ki Kwon, Yun-Hi Kim, Tae Kyu An, "Ambipolar charge transport of diketopyrrolepyrrole-silole-based copolymers and effect of side chain engineering: Compact model parameter extraction strategy for high-voltage logic applications" **Organic Electronics: physics, materials, applications**, 54, 1-8 (2018)
37. **Hyojung Cha**, Jiaying Wu, Andrew Wadsworth, Jade Nagitta, Sebastian Pont, Zhe Li, Justin Searl, Mark F. Wyatt, Derya Baran, Iain McCulloch, James R. Durrant "An efficient, 'burn in' free organic solar cell employing a non-fullerene electron acceptor" **Advanced Materials**, 29, 1701156 (2017)
38. **Hyojung Cha**, Tae Kyu An, Yebyeol Kim, Ye Rim Cheon, Dae Sung Chung, Yun-Hi Kim, Chan Eon Park "Ternary blends to achieve well-developed nanoscale morphology in organic bulk heterojunction solar cells" **Organic Electronics**, 45, 263 (2017)
39. Jisu Hong, Yeon Hee Ha, **Hyojung Cha**, Ran Kim, Yu Jin Kim, Chan Eon Park, James R. Durrant, Soon-Ki Kwon, Tae Kyu An, Yun-Hi Kim, "All-Small-Molecule Solar Cells Incorporating NDI-Based Acceptors: Synthesis and Full Characterization" **ACS Applied Materials and Interfaces**, 9, 51, 44667-44677 (2017)
40. Min Jae Sung, Yebyeol Kim, Sang Bong Lee, Gi Back Lee, Tae Kyu An, Hyojung Cha, Se Hyun Kim, Chan Eon Park, Yun-Hi Kim, "New dithienophosphole-based donor-acceptor alternating copolymers: Synthesis and structure property relationships in OFET" **Dyes and Pigments**, 125, 316-322 (2016)
41. Jang Yeol Back, Tae Kyu An, Ye Rim Cheon, **Hyojung Cha**, Jaeyoung Jang, Yebyeol Kim, Yonghwa Baek, Dae Sung Chung, Soon-Ki Kwon, Chan Eon Park, Yun-Hi Kim, "Alkyl Chain Length Dependence of the Field-Effect Mobility in Novel Anthracene Derivatives" **ACS Applied Materials and Interfaces**, 7, 1, 351–358 (2015)
42. Myeong-Jong Kim, Tae Kyu An, Seul-Ong Kim, **Hyojung Cha**, Hyoung Nam Kim, Tan Xiofeng, Chan Eon Park, Yun-Hi Kim, "Molecular design and ordering effects of alkoxy aromatic donor in a DPP copolymer on OTFTs and OPVs" **Materials Chemistry and Physics**, 153, 1, 63–71 (2015)

43. Wonho Lee,[§] **Hyojung Cha**,[§] Yu Jin Kim, Ji-Eun Jeong, Sungu Hwang, Chan Eon Park, Han Young Woo, Amorphous Thieno[3,2-b]thiophene and Benzothiadiazole Based Copolymers for Organic Photovoltaics ([§]These authors contributed equally to this work) *ACS Applied Materials & Interfaces* 6, 20510–20518 (2014)
44. **Hyojung Cha**, Jang Yeol Baek, Seul-Ong Kim, Tae Kyu An, Soon-Ki Kwon, Yun-Hi Kim, Chan Eon Park "Development of Bulk Heterojunction Morphology by the Difference of Intermolecular Interaction Behaviors" *Organic Electronics*, 15, 3558–3567 (2014)
45. **Hyojung Cha**,[§] Hyoung Nam Kim,[§] Tae Kyu An, Moon Sung Kang, Soon-Ki Kwon, Yun-Hi Kim, Chan Eon Park "Effects of Cyano-Substituents on the Molecular Packing Structures of Conjugated Polymers for Bulk-Heterojunction Solar Cells" ([§]These authors contributed equally to this work.) *ACS Applied Materials & Interfaces*, 6, 15774 (2014)
46. Tae Kyu An, Seong Jong Park, Eun Soo Ahn, Sang Hun Jang, Yebyeol Kim, Kyunghun Kim, **Hyojung Cha**, Yu Jin Kim, Se Hyun Kim, Chan Eon Park, Yun-Hi Kim "Solvent Boiling Point affects the Crystalline Properties and Performances of Anthradithiophene based Devices" *Dyes and Pigments*, 114, 60-68 (2014)
47. Jinhee Lee, **Hyojung Cha**, Hoyoul Kong, Myungeun Seo, Jaewon Heo, In Hwan Jung, Jisung Kim, Hong-Ku Shim, Chan Eon Park, Sang Youl Kim, "Synthesis of triarylamine-based alternating copolymers for polymeric solar cell" *Polymer*, 55, 19, 4837–4845 (2014)
48. Tae Kyu An, Hui-Jun Yun, Raghavendra Narote, Ran Kim, Sang Uck Lee, Yebyeol Kim, Sooji Nam, **Hyojung Cha**, Yong Jin Jeong, Kyunghun Kim, Shinuk Cho, Soon-Ki Kwon, Yun-Hi Kim, Chan Eon Park "Synthesis and characterization of an ester-terminated organic semiconductor for ethanol vapor detection" *Organic Electronics*, 15, 10, 2277–2284 (2014)
49. Yebyeol Kim, Tae Kyu An, Jiye Kim, Jihun Hwang, Seonuk Park, Sooji Nam, **Hyojung Cha**, Won Jeong Park, Jeong Min Baik, Chan Eon Park "A composite of a graphene oxide derivative as a novel sensing layer in an organic field-effect transistor", *Journal of Materials Chemistry C*, 2, 23, 4539-4544 (2014)
50. Gi Back Lee, Ran Kim, **Hyojung Cha**, Chan Eon Park, Jin Hak Kim, Yun-Hi Kim "New donor-acceptor copolymer containing dialkoxy naphthalene and carbonylated thieno[3,4-b]thiophene for OTFT and OPV" *Macromolecular Research*, 22, 5, 569-573 (2014)
51. Jae Yeol Ma, Hui- Jun Yun, Seul-Ong Kim, Gi Back Lee, **Hyojung Cha**, Chan Eon Park, Soon-Ki Kwon, Yun-Hi Kim "Novel Alkoxyanthracene Donor and Benzothiadiazole Acceptor for Organic Thin Film Transistor and Bulk Heterojunction Organic Photovoltaic Cells" *Journal of Polymer Science Part A: Polymer Chemistry*, 52, 9, 1306-1314 (2014)
52. Tae Kyu An, Il Kang, Hui-jun Yun, **Hyojung Cha**, Jihun Hwang, Seonuk Park, Jiye Kim, Yu Jin Kim, Dae Sung Chung, Soon-Ki Kwon, Yun-Hi Kim, and Chan Eon Park "Solvent additive to achieve highly-ordered nanostructural semicrystalline DPP copolymers: toward a high charge carrier mobility" *Advanced Materials*, 25, 448, 7003-7009 (2014)
53. **Hyojung Cha**,[§] Gang Young Lee,[§] Yuanhe Fu, Yu Jin Kim, Chan Eon Park, and Taiho Park "Simultaneously Grasping and Self-organizing Photoactive Polymers for Highly Reproducible Organic Solar Cells with Improved Efficiency" ([§]These authors contributed equally to this work.) *Advanced Energy Materials*, 3, 1018 (2013)

54. **Hyojung Cha**, Dae Sung Chung, Suk Young Bae, Min-Jung Lee, Tae Kyu An, Jihun Hwang, Kyung Hwan Kim, Yun-Hi Kim, Dong Hoon Choi and Chan Eon Park "Complementary Absorbing Star-Shaped Small Molecules for the Preparation of Ternary Cascade Energy Structures in Organic Photovoltaic Cells" **Advanced Functional Materials**, 23, 1556 (2013)
55. Yuanhe Fu,[§] **Hyojung Cha**,[§] Seulki Song, Gang-Young Lee, Chan Eon Park, and Taiho Park "Low Bandgap Quinoxaline-based D–A-type Copolymers: Synthesis, Characterization, and Photovoltaic Properties" ([§]These authors contributed equally to this work.) **Journal of Polymer Science Part A: Polymer Chemistry** , 51, 372 (2013)
56. Chan Wo Jeon, So-Hee Kang, Hui-Jun Yun, Tae Kyu An, **Hyojung Cha**, Chan-Eon Park, Yun-Hi Kim "Synthesis and characterization of poly(dialkylterthiophene-bithiophene) and poly(dialkylterthiophene-thienothiophene) for organic thin film transistors and organic photovoltaic cells" **Synthetic Metals**, 185-186, 159-166 (2013)
57. Yu Jin Kim, Yun-Ji Lee, Jae-Wan Jang, **Hyojung Cha**, Yun-Hi Kim, Soon-Ki Kwon, Chan Eon Park "Synthesis and Characterization of Naphtho[2,1-b:3,4-b0]dithiophene-Based Polymers with Extended p-Conjugation Systems for Use in Bulk Heterojunction Polymer Solar Cell", **Journal of Polymer Science part A : Polymer Chemistry**, 51, 4742-4751 (2013)
58. Tae Kyu An, Sang Hun Jang, Seul-Ong Kim, Jaeyoung Jang, Jihun Hwang, **Hyojung Cha**, Young Ri Noh, Soon Byung Yoon, Yong Jin Yoon, Lae Ho Kim, Dae Sung Chung, Soon-Ki Kwon, Yun-Hi Kim, Sang-Gyeong Lee, and Chan Eon Park "Synthesis and Transistor Properties of Novel Asymmetric Oligothiophenes: The Relationship between Molecular Structure and Device Performance" **Chemistry - A European Journal**, 19, 14052 (2013)
59. Tae Kyu An, Seung-Hoon Hahn, Sooji Nam, **Hyojung Cha**, Yecheol Rho, Dae Sung Chung, Moonhor Ree, Moon Seong Kang, Soon-Ki Kwon, Yun-Hi Kim, Chan Eon Park "Molecular Aggregation–Performance Relationship in the Design of Novel Cyclohexylethynyl End-Capped Quaterthiophenes for Solution-processed Organic Transistors" **Dyes and Pigments**, 96, 756 (2013)
60. **Hyojung Cha**, Jong Won Park, Dae Sung Jung, Tae Kyu An, Yun-Hi Kim, Soon-Ki Kwon, and Chan Eon Park "A side chain-modified quaterthiophene derivative for enhancing the performance of organic solar cell devices" **Journal of Materials Chemistry**, 22, 15141 (2012)
61. **Hyojung Cha**,[§] Yuanhe Fu,[§] Gang-Young Lee, Byung Joon Moon, Chan Eon Park, Taiho Park "3,6-Carbazole Incorporated into Poly[9,9-dioctylfluorene-alt-(bisthieryl)benzothiadiazole]s Improving the Power Conversion Efficiency" ([§]These authors contributed equally to this work.) **Macromolecules**, 45, 3004 (2012)
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66. Jun Ho Kwon, Hyun-Dong Yeo, **Hyojung Cha**, Min Jung Lee, Hyun-Tae Park, Jin-Hee Park, Chan-Eon Park, Yun-Hi Kim "Synthesis and Characterization of Dialkoxynaphthalene-based New pi-Conjugated Copolymer for Photovoltaic Solar Cell" *Marcromolecular Research*, 19, 197 (2011)
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72. Seul-Ong Kim, Dae Sung Chung, Pan Seok Kim, **Hyojung Cha**, Hye Jin Koh, Yun-Hi Kim, and Chan Eon Park, Soon-Ki Kwon, "Synthesis and characterization of narrow-band-gap copolymers containing alkoxyanthracene as electron donor for organic photovoltaic applications" *Proceedings of International Meeting on Information Display*, 703 (2010)

❖ Patent

1. Jan Kosco, Matthew Bidwell, Hyojung Cha, Calvyn T. Howells, James R. Durrant, Iain McCulloch, Record Photocatalytic Hydrogen Evolution from Organic Semiconductor Heterojunction Nanoparticles, US patent 11,508,911 (2022)

❖ Presentation

1. "Photophysical Study on Energy Materials for Optoelectronic Applications" 한국고분자학회 대구경북지부 (2022)
2. "Photophysical Study on Energy Materials for Optoelectronic Applications" 한국탄소학회 (2022)
3. "Photophysical Study on Energy Materials for Optoelectronic Applications" 한국전기화학학회 (2022)
4. "Influence of blend morphology on charge separation and recombination dynamics in nonfullerene acceptor-based organic solar cells" 한국태양에너지학회 추계학술발표대회 (2022)
5. "Photophysical Study on Energy Materials for Optoelectronic Applications" 한국화학공학회 춘계학술대회 (신진연구자), 제주국제컨벤션센터 (2022)
6. "Influence of blend morphology on charge separation and recombination dynamics in nonfullerene acceptor-based organic solar cells" NanoGe Spring Meeting (2022)
7. "Photophysical Study on Energy Materials for Optoelectronic Applications" 광주전남지역혁신 플랫폼 사업 세미나 (2021)
8. "Photophysical Study on Energy Materials for Optoelectronic Applications" 한국고분자학회 추계학술대회 (신진연구자), 경주화백컨벤션센터 (2021)
9. "Photophysical Study on Energy Materials for Optoelectronic Applications" 제 1 회 그린에너지 소부장섬머스쿨, 경상국립대학교 (2021)
10. "Photophysical Study on Energy Materials for Optoelectronic Applications" 제 134 차 대한화학회 물리화학분과 여름 심포지엄, 제주라마다호텔 (2021)
11. "Study on Charge Generation in Organic Solar Cells" UK-China Workshop on Organic and Perovskite Solar Cells 2019, Swansea, United Kingdom (2019)
12. "An Analysis of the Factors Determining the Efficiency of Photocurrent Generation in Polymer:Nonfullerene Acceptor Solar Cells" E-MRS, Nice, France (2019)
13. "The Effect of Energetics on Charge Separation and Recombination in Nonfullerene-based Organic Solar Cells." International Workshop and Conference on Perovskite & Hybrid Photovoltaics (ICPHPV-2019), New Delhi, India (2019)
14. "Influence of Blend Morphology and Energetics on Charge Separation and Recombination Dynamics in Organic Solar Cells Incorporating a Non-Fullerene Acceptor" The International Conference on Science and Technology of Synthetic Metals 2018 (ICSM 2018), Busan, South Korea (2018)
15. "Influence of Non-Fullerene-Blend Morphology on Charge Separation and Recombination Dynamics in Organic Bulk Heterojunction Solar Cells" MRS Fall meeting, Boston, USA (2016)
16. "Complementary Absorbing Star-Shaped Small Molecules for Organic Ternary Solar Cells" MRS spring meeting, San Francisco, USA (2014)
17. "Complementary Absorbing Star-Shaped Small Molecules for the Preparation of Ternary Cascade Energy Structures in Organic Photovoltaic Cells" SPIE Optic and Photonics, San Diego, USA (2013)

18. "Complementary absorbing star-shaped small molecules for the preparation of ternary cascade energy structures in organic photovoltaic cells" Korea Photovoltaic Society, Korea (2013)
19. "An easily synthesized D-A-type polymer based on 3,6-carbazole incorporated into 2,7-flourene for high performance polymer solar cells" The 12th international meeting on information display (IMID), South Korea (2012)
20. "Side-chain modified quarterthiophene derivative enhances device performance of organic solar cells", The Polymer Society of Korea, Spring Meeting, Korea (2011)

❖ Research Grant

2023. 03 – 2032. 02 한우물파기 기초연구 (한국연구재단, 책임연구원, 시분해 흡수 분광법을 통한 전하 동역학 연구를 기반으로 한 고분자 광촉매 개발, 총 1,924,750,000 원)

2020. 06 – 2024. 02 기초연구실 (한국연구재단, 공동연구원, Energy band 제어를 통한 고효율 유연 광에너지 융합소자 구현을 위한 기초연구실, 총 1,435,000,000 원)

2020. 07 – 2024. 02 신진연구 최초혁신실험실 (한국연구재단, 책임연구원, 수소 생산을 위한 유기 나노입자형 물 분해 광촉매 및 광전기화학전지 개발, 총 100,000,000 원)

2020. 03 – 2024. 02 신진연구 (한국연구재단, 책임연구원, 수소 생산을 위한 유기 나노입자형 물 분해 광촉매 및 광전기화학전지 개발, 총 427,530,000 원)

2018. 09 – 2019. 08 학문후속세대양성사업 국외연수 (한국연구재단, 책임연구원, 비 풀러렌 역셉터 기반의 3 성분계 유기태양전지 내의 전하 수송 메카니즘 규명, 총 40,000,000 원)