

# Yujin Park

## Curriculum Vitae

### EDUCATION

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- Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea** 2019~2023
- Ph.D. in Chemistry, Advisor: Prof. Jeong Young Park
  - Thesis title: Investigation of Plasmonic Hot-Carrier Flow Based on Spatial and Temporal-Resolution Analysis in Metal/Semiconductor Structures
- Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea** 2017~2019
- M.S. in Graduate School of EEWS, Advisor: Prof. Jeong Young Park
  - Thesis title: Enhanced Hot Electron Generation on MAPbI<sub>3</sub> Modified Plasmonic Nanodiode
- Hongik University, Seoul, South Korea** 2013~2017
- B.S. in Materials Science and Engineering

### RESEARCH EXPERIENCES

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- Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea**  
*Ph.D. Candidate / Department of Chemistry* 2019~present
- **PI:** Prof. Jeong Young Park
    - Understanding the Correlation between Hot-Carrier Flux and Lifetime on Perovskite Plasmonic Metal Structure: from Macroscopic Detection to Nanoscopic Analysis
- Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea**  
*M.S. / Graduate School of EEWS* 2017~2019
- **PI:** Prof. Jeong Young Park
    - Investigation on Enhanced Hot Electron Generation on MAPbI<sub>3</sub> Modified Plasmonic Nanodiode.
- Hongik University, Seoul, South Korea**  
*Undergraduate Research Assistant / Department of Materials Science and Engineering* 2015~2017
- **PI:** Prof. Byoungnam Park
    - Research on the Effect of Transport and Energetic Level Engineering on Photo-electrochemical Properties.
- Industry-university Research Internship / Department of Materials Science and Engineering* Summer 2015
- **PI:** Prof. Byoungnam Park
    - Research on the Electrical and Optical Properties of Spin-Coated Perovskite Films.
- Korea Foundation for the Advancement of Science & Creativity**  
*Undergraduate Research Program* 2015~2016
- **PI:** Prof. Byoungnam Park
    - Research on the Electrical and Optical Properties of Vapor-Deposited Perovskite Films.

### RESEARCH INTERESTS

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- Understanding Light-Matter Interactions on Plasmonic Nanomaterials.
- Understanding Electronic Excitation during Energy Dissipation and Conversion at Extreme Spatial and Temporal Limits

### PUBLICATIONS

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(First-author list)

1. **Yujin Park**,<sup>‡</sup> Daehan Kim,<sup>‡</sup> Jungkweon Choi,<sup>‡</sup> Hyunhwa Lee, Jungmin Kim, Dae Won Cho, Hyotcherl Ihee,<sup>\*</sup> Byungha Shin,<sup>\*</sup> and Jeong Young Park<sup>\*</sup> "Engineering Perovskite Bandgap for Control of Hot-Electron Dynamics in Plasmonic Nanodiodes" (<sup>‡</sup>Equal contribution) (In preparation)

2. **Yujin Park**, Jihyang Park, Yeonghoon Jin, Yujin Roh, Hyunhwa Lee, Kyoungsik Yu, Moonsang Lee,\* and Jeong Young Park\* "Boosting Plasmonic Photoconductivity Using Simultaneous Ambipolar Hot-Carrier Injection" (In preparation)
3. Hyunhwa Lee,‡ **Yujin Park**,‡ Kyoungjae Song, and Jeong Young Park\* "Surface Plasmon-Induced Hot Carriers: Generation, Detection, and Applications" *Accounts of Chemical Research*, 55, 3727-3737 (2022) (‡Equal contribution), IF=24.466
4. **Yujin Park**,‡ Jungkweon Choi,‡ Mincheol Kang, Hyunhwa Lee, Hyotcherl Ihee,\* and Jeong Young Park\* "Relaxation Dynamics of Enhanced Hot-Electron Flow on Perovskite Coupled Plasmonic Silver Schottky Nanodiode" *The Journal of Physical Chemistry C*, 124, 2575-2582 (2021) (‡Equal contribution), IF=4.126
5. **Yujin Park**, Jungkweon Choi, Changhwan Lee, An-Na Cho, Dae Won Cho, Nam-Gyu Park, Hyotcherl Ihee,\* and Jeong Young Park\* "Elongated Lifetime and Enhanced Flux of Hot Electrons on Perovskite Plasmonic Nanodiode" *Nano Letters*, 19, 5489-5495 (2019), IF=11.238
6. **Yujin Park**, and Byoungnam Park\* "Interfacial Energy Band Bending and Carrier Trapping at the Vacuum-Deposited MAPbI<sub>3</sub> Perovskite/Gate Dielectric Interface", *Results in Physics*, 11, 302-305 (2018), IF=3.042
7. **Yujin Park**, and Byoungnam Park\* "Effect of Ligand Exchange on Photocurrent Enhancement in Cadmium Selenide (CdSe) Quantum Dot Water Splitting Cells", *Results in Physics*, 11, 162-165 (2018), IF=3.042

(Co-author list)

8. Hyunhwa Lee,‡ Passarut Boonmongkolras,‡ Seongmoon Jun, Daehan Kim, **Yujin Park**, Jaehyuk Ko, Yong-Hoon Cho, Byungha Shin,\* and Jeong Young Park\* "In Situ Observation of Photo-Induced Halide Segregation in Mixed Halide Perovskite" *ACS Applied Materials & Interfaces* 6, 1565 (2023), IF=6.959
9. Si Woo Lee, Hyunhwa Lee, **Yujin Park**, Heeyoung Kim, Gabor A. Somorjai,\* and Jeong Young Park\* "Surface Chemistry of Hot Electron and Metal-Oxide Interfaces" *Surface Science Reports* 76, 100532 (2021), IF=12.267
10. Mincheol Kang, **Yujin Park**, Hyunhwa Lee, Changhwan Lee, and Jeong Young Park\* "Manipulation of Hot Electron Flow on Plasmonic Nanodiodes Fabricated by Nanosphere Lithography" *Nanotechnology* 32, 225203 (2021), IF=3.874
11. Changhwan Lee, **Yujin Park**, and Jeong Young Park\* "Hot Electrons Generated by Intraband and Interband Transition Detected Using a Plasmonic Cu/TiO<sub>2</sub> Nanodiode" *RSC Advances*, 9, 18371-18376 (2019), IF=3.119
12. Changhwan Lee, Young Keun Lee, **Yujin Park**, and Jeong Young Park\* "Polarization Effect of Hot Electrons in Tandem-Structured Plasmonic Nanodiode" *ACS Photonics*, 5, 3499-3506 (2018), IF=6.864
13. Seongeun Cho, Youngjun Kim, Minkyong Kim, Jin-A Kim, Kihyun Kim, **Yujin Park**, Soojin Han, Changyeol Han, Jong-Hoon Kim, Jun Yeon Hwang, Jun-Young Park, Eugene Kim, Heesun Yang, and Byoungnam Park\* "Quantized Interfacial Properties at Lead Sulfide/Zn<sub>1-x</sub>Mg<sub>x</sub>O Energy Harvesting Assembly: Formation of Nanocrystal Solid Solution", *Solar Energy Materials and Solar Cells*, 164, 156-164 (2017), IF=5.018
14. Seongeun Cho, Youngjun Kim, **Yujin Park**, Miri Choi, Jun-young Park, Jihoon Lee, Sungyoung Park, Mincheol Chang, Jiung Cho, Insik In, and Byoungnam Park\* "Tunable Exciton Dissociation and Luminescence Quantum Yield in a Quasi-Ordered Regioregular Polythiophene", *The Journal of Physical Chemistry C*, 120, 26119-26128 (2016), IF=4.536

## PRESENTATIONS

(International conferences)

1. **Yujin Park**, Jungkweon Choi, Mincheol Kang, Hyunhwa Lee, Hyotcherl Ihee,\* and Jeong Young Park\* "Enhanced Hot Electron Lifetime and Flux on a Perovskite Modified Plasmonic Nanodiode", *NANO KOREA 2022 Symposium*, Goyang, Korea (Poster presentation)
2. **Yujin Park**, Jungkweon Choi, Mincheol Kang, Hyunhwa Lee, Hyotcherl Ihee,\* and Jeong Young Park\* "Elongated Lifetime and Enhanced Flux of Photo-induced Hot Electrons on a Perovskite Modified Plasmonic Nanodiode", *2022 The 13<sup>th</sup> International Workshop on Oxide Surfaces: IWOX-XIII*, Pyeongchang, Korea (Poster presentation)
3. **Yujin Park**, Jungkweon Choi, Mincheol Kang, Hyunhwa Lee, Hyotcherl Ihee,\* and Jeong Young Park\*

"Elongated Lifetime and Amplified Flux of Photo-induced Hot electrons on a Perovskite Modified Plasmonic Nanodiode", *2021 11<sup>th</sup> Asian Photochemistry Conference*, Online (Oral presentation)

4. **Yujin Park**, Jungkweon Choi, Changhwan Lee, An-Na Cho, Dae Won Cho, Nam-Gyu Park, Hyotcherl Ihee,\* Jeong Young Park\* "Amplified Hot Electron Flow on Perovskite Modified Plasmonic Au-TiO<sub>2</sub> Nanodiode", *2019 ACS Fall National Meeting & Exposition CHEMISTRY & WATER*, San Diego, USA (Poster presentation)
5. **Yujin Park**, Jungkweon Choi, Hyotcherl Ihee,\* and Jeong Young Park\* "Elongated lifetime and enhanced flux of hot electron on perovskite modified plasmonic nanodiode", *2019 5<sup>th</sup> International Conference on Ultrafast Structural Dynamics*, Daejeon, Korea (Poster presentation)

(Domestic conferences)

6. **Yujin Park**, and Jeong Young Park\* "Manipulating Hot electron Lifetime and Flux by Controlling Perovskite Bandgap on a Perovskite Plasmonic Nanodiode", *2022 130<sup>th</sup> General Meeting of the Korean Chemistry Society*, Gyeongju, Korea (Poster presentation)
7. **Yujin Park**, Jungkweon Choi, Hyotcherl Ihee,\* and Jeong Young Park\* "Prolonged Lifetime and Enhanced Flow of Hot electrons on a Perovskite Combined Plasmonic Nanodiode" *2021 128<sup>th</sup> General Meeting of the Korean Chemistry Society*, Busan, Korea (Poster presentation)
8. **Yujin Park**, Seongeun Cho, and Byoungnam Park\* "Electrical and Optical Properties of Vapor-Deposited Perovskite Films", *2015 Fall Conference of the Korean Institute of Metals and Materials*, Daejeon, Korea (Poster presentation)

## HONORS & AWARDS

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- **Best BKCS Poster Award** Oct. 2022  
2022 130<sup>th</sup> General Meeting of the Korean Chemical Society
- **POSCO TJ Park Science Fellowship** 2021~2024  
2021 Cheong-Am Science Fellowship from POSCO TJ Park Foundation
- **Best Undergraduate Dissertation Award** Jan. 2017  
Department of Materials Science and Engineering, Hongik University
- **Research Assistant Scholarships** 2015~2017  
Department of Materials Science and Engineering, Hongik University

## SKILLS

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- Characterization: Atomic Force Microscopy (AFM), Time-resolved pump-probe spectroscopy
- Computational Skills: Finite-Difference Time-Domain (FDTD) Simulation (Photonics, Lumerical)