

Ji-Soo Jang, Ph.D.

Korea Institute of Science and Technology (KIST), Electronic and Hybrid Materials Research Center
Hwarang-ro 14-gil, Seongbuk-gu, Seoul, 02792, Republic of Korea
Mobile: +82-10-3185-3745, E-mail: wkdwlt92@kist.re.kr
Personal Research Homepage: <https://wkdwlt92.wixsite.com/starlab>
H-index: 49 (Google Scholar)

Research Summary

- **Environmental materials for clean energy generation**
 - ✓ Power generation system based on greenhouse gas capture [**The world's first**]
 - ✓ Energy harvesting from nature sources (e.g. toxic gas, water, humidity, sweat)
 - ✓ Simultaneous energy generation and water purification
- **Artificial nose for healthcare and environment monitoring**
 - ✓ Optical nose [Chemiresistive sensors+Micro LED] for cancer detection
 - ✓ Artificial nose by employing molecular sieving layer, nanocatalysts, simulations, and machine learning
- **Electrical stimulation for bio-applications**
 - ✓ Autonomous electrical stimulator for rapid cell growth
 - ✓ Wound-healing patch by combining an energy harvester and a ROS scavenger

PROFESSIONAL APPOINTMENTS

- **Korea Institute of Science and Technology (KIST), Seoul, Korea Mar. 2022~Present**
 - ✓ Senior Research Scientist
 - ✓ Electronic Materials Research Center
- **Korea Institute of Science and Technology (KIST), Seoul, Korea July 2021~Feb. 2022**
 - ✓ Research Scientist
 - ✓ Electronic Materials Research Center
- **Yale University August 2020-June 2021**
 - ✓ Postdoctoral Associate in Chemical and Environmental Engineering
 - ✓ Advisor: Prof. Menachem Elimelech, Co-Advisor: John Fortner
- **Korea Advanced Institute of Science and Technology (KAIST) Mar. 2020 ~July 2020**
 - ✓ Postdoctoral Associate in Material Science and Engineering
 - ✓ Advisor: Prof. Il-Doo Kim
- **Department of Chemistry, University of California, Irvine (UCI) Dec. 2016 ~April 2017**
 - ✓ Visiting Researcher in Department of Chemistry
 - ✓ Advisor: Reginald M. Penner
- **Massachusetts Institute of Technology (MIT) Sep. 2015 ~Dec. 2015**
 - ✓ Visiting Researcher in Chemical Engineering
 - ✓ Advisor: Prof. Gregory C. Rutledge

ACADEMIC EDUCATION

- **Ph. D. Material Science and Engineering (Global Ph.D. Fellowship) Mar. 2016 ~Feb. 2020**
 - ✓ Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea
 - ✓ Research Thesis: Development of highly selective/sensitive chemical sensor through the structure control and surface modification of organic/inorganic nanomaterials
 - ✓ Advisor: Prof. Il-Doo Kim
- **M.S., Material Science and Engineering Mar. 2014 ~ Feb. 2016**
 - ✓ Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea **GPA: 4.08 /4.3**
 - ✓ Research Thesis: Development of diverse morphology of hollow SnO₂ and protein based nanocatalysts for detection of biomarker molecules

✓ Advisor: Prof. Il-Doo Kim

- **B.S., Material Science and Engineering** **Mar. 2010 ~ Feb. 2014**
 - ✓ Hanyang University, Seoul, South Korea. **GPA: 4.27/4.5 (Summa Cum Laude)**
 - ✓ Member of Honors Program in Hanyang university
 - ✓ Advisor: Prof. Won-Il Park
- **Incheon Science High School** **Mar. 2008 ~ Feb. 2010**
 - ✓ Early graduation of excellent student

PROFESSIONAL EXPERIENCE

2018-09. 06	Program Committee: KAIST International MSE Workshop 2018 (Fall)
2018-08. 07 ~ 08	Program Committee: KAIST International MSE/CBE Workshop 2018
2016. 08	Program Assistant: KAIST International MSE Workshop 2016
2015.08.11	Program Assistant: 1 st KAIST-MIT-Technion Symposium, Daejeon, Korea
2012.03~2013.03	Researcher , Nano Electronic and Photonics Lab., Advisor: Prof. Won-Il Park Hanyang University (Honors lab program)
2010.03~2014.02	Honors program student in Hanyang University (full scholarship for 4 years), Seoul, South Korea.

HONORS

1. **Excellent Young Researcher Grant (우수신진과제)** with annual funding of KRW 170 million, 2025
2. **KIST Young Fellow**, 2024 (\$100,000/year)
3. **Representative student in KAIST for 2019 Schmidt Science Fellow (\$100,000/year)**, 2019
4. **Global Ph. D Fellowship from National Research Foundation of Korea (NRF) (\$30,000/year)**, Grant by Korean government, 2016–2018
5. **Korean Government Scholarship, KAIST**, 2014–present
6. **International Research Fellowship of BK21 Plus Program**, Korea, 2016

AWARDS

1. **Patent Transfer**, elec cell with amount of royalty for KRW 200,000,000 in 2025
2. **KIST Young Fellow**, 2024 (\$10,000/year)
3. **The KIST Award of the Month**, 2023 (\$5,000)
4. **Patent Transfer**, MOP with the amount of royalty for KRW 600,000,000 in 2023 (a 20% stake in the patent transfer).
5. **Excellence Doctorate Thesis Award** (Gold medal), ‘Graduation ceremony in KAIST’, 2020
6. **ICAE Student Award**, ‘5th International Conference on Advanced Electromaterials’, 2019
7. **Silver Award (\$7,000)**, ‘25th Samsung Human Tech Paper Competition’, 2019
8. **Excellent student among Global Ph.D Fellowship students from National Research Foundation of Korea (Max \$5,000)**, 2018
9. **Top Excellence Award**, 2018 KAIST Invention Award, 2018 (1,500\$)

10. **Top Excellence Research**, 2018 National R&D Excellence and 100 line (2018년 국가연구개발 우수성과 100선, Ministry of Science and ICT), 2018
11. **Best Paper Award**, '2018 spring KMRS', 2018
12. **Trade, Industry and Energy Ministry Award** (산업통상자원부 장관상, promising young scientist from Korean government), '2018 spring ceramic conference', 2018
13. **Grand Prize (5,000 \$)**, 2017 Scientific Technology-Based University Student Business Idea Contest, 2017
14. **Patent Transfer**, Samsung with the amount of royalty for KRW 900,000,000 in 2017.
The patent is related to the fabrication method of metal oxide nanobelt/ porous metal oxide nanofibers for application in gas sensors. KR patent, 10-2016-0178894, 10-2016-0174662
15. **Patent Transfer**, Korean enterprise, NIDS Co. with the amount of royalty for KRW 100,000,000 in 2017.
The patent is related to the fabrication method of metal oxide nanobelt/ porous metal oxide nanofibers for application in gas sensors. KR patent, 10-2016-0178894, 10-2016-0174662
16. **Patent Transfer**, Korean enterprise, GD sentron Co. with the amount of royalty for KRW 200,000,000 in 2017.
The patent is related to the fabrication method of metal oxide nanotube functionalized with metallic catalyst for application in gas sensors. KR patent, 10-2015-0034024, 10-2015-0148273, US patent, 15111173.
17. **Pacrim11 Best Paper Award (\$1,000)**, '2016 the Korean Ceramic Society Fall Conference'. 2016
18. **KAIST Creativity & Challenge Award**, KAIST President, 2016.
19. **Top Excellence Award**, 'EEWS Business Plan Contest 2015' **KAIST**. 2016
20. **Silver Award (\$7,000)**, '21st Samsung Human Tech Paper Competition', 2015

RESEARCH SUMMARY

PUBLICATIONS SUMMARY

Published Papers		Presentations		Patents	
International	Domestic	International	Domestic	International	Domestic
95 First/corresponding author: 33 Co-author: 62	1 First author: 1	22 Speaker: 8 Co-author: 14	8 Speaker: 5 Co-author: 3	5	34

PUBLICATIONS

• INTERNATIONAL JOURNALS

[1st author/Corresponding author]

33. Minho Choi, Minwoo Lee, Jimin Yoon, **Ji-Soo Jang***, Seunghyun Weon*, Energy Generation from Wastewater Treatment via Photocatalyst-Embedded Hydroelectric Nanogenerator , **Submitted, 2025**
32. Tae Gwang Yun*, Yejin Lee†, Joonchul Shin†, Seonghun Lee, Hyun Ji Lee, Sang-Joon Kim, Ho Won Jang, Han Seul Kim*, **Ji-Soo Jang*** Power generation from asymmetric greenhouse gas capture, **Submitted, 2025**
- 31 Gwang Su Kim, Hwayeon Kum, Jung-Won An, Hyunah Kwon, Yeon-Ju Ryu, Ho Won Jang, Kyungjae Lee*, Jihan Kim* and **Ji-Soo Jang***, Ultrafast Photothermal-Shock Driven Multi-Metallic Exsolution for Artificial Olfaction of Sulfur Compounds Detection, **Small Structures (IF: 11.4), Accepted, 2025**
30. Joonchul Shin, Gwang Su Kim, Seongmin H, Taehee Yoon, Woong Heo, Junwoo Lee, Kyeong Yeon Lee,

Seong Jun Park, Sunyoung Park, Jaewoo Song, Sunghoon Hur, Hyun-Cheol Song, **Ji-Soo Jang***, Jin-Sang Kim*, Hyo-Il Jung*, Chong-Yun Kang*, Artificially intelligent nasal perception for rapid sepsis diagnostics, **npj Digital Medicine (IF: 15.1, JCR: 0.3%), Accepted, 2025**

29. Yejin Lee, Minwoo Lee, Junwoo Lee, Ho Won Jang, **Ji-Soo Jang,*** Hydrovoltaic Power Generation Depend on Wettability at the Liquid–Solid Interface: Mechanisms, Materials, and Applications With Various Resource, **Exploration (IF: 22.5), 5, 2, 7007, 2025**
28. Ahrom Ryu, Bo-In Park, Hyun-Jae Lee, Jung-Won An, Jeong-Jun Kim, Sahn Nahm, Seong H. Kim, Byungju Lee*, Ji-Won Choi* and **Ji-Soo Jang***, Ultrafast formation of porosity and heterogeneous structures on 2D oxides via momentary photothermal effect, **Journal of Materials Chemistry A, 13, 5613**
27. Jung-Won An, Ho Won Jang, **Ji-Soo Jang,*** Junwoo Lee*, Enhancing NO₂ sensing performance and stability: low-crystallinity conjugated polymers with localized aggregates via ethylene glycol pendants, **Journal of Materials Chemistry A, 13, 11323, 2025 (Back-cover featured)**
26. Junwoo Lee, Joonchul Shin, Jung-Won An, Jiawei He, **Ji-Soo Jang,*** and Mingjiang Zhong*, Covalently Merging Ionic Liquids and Conjugated Polymers: A Molecular Design Strategy for Green Solvent-Processable Mixed Ion–Electron Conductors Toward High-Performing Chemical Sensors, **Advanced Functional Materials, 34, 45, 2470266, 2024 (Back-cover featured)**
25. Jiwon Park, Sang-Mi Chang, Joonchul Shin, In Woo Oh, Dong-Gyu Lee, Hyun Soo Kim, Sunghoon Hur, Chong-Yun Kang, **Ji-Soo Jang,*** and Hyun-Cheol Song*, Bio-Physicochemical Dual Energy Harvesting Fabrics for Self-Sustainable Smart Electronic Suits, **Advanced Energy Materials, 13, 28, 2300530, Front-cover featured, 2023, (IF: 29.698)**
24. Gwang Su Kim, Yunsung Lim, Joonchul Shin, Sunghoon Hur, Hyun-Cheol Song, Seung-Hyub Beak, Seong Keun Kim, Jihan Kim*, Chong-Yun Kang*, **Ji-Soo Jang***, Breathable MOFs layer on atomically grown 2D SnS₂ for stable and selective surface activation, **Advanced Science, Back-cover featured, 10, 17, 2370110, 2023 (IF: 17.521)**
23. Joonchul Shin, Geonhee Lee, Myoungwoo Choi, Huiwon Jang, Yunsung Lim, Gwang-Su Kim, Sang-Hyeon Nam, Jihan Kim, Chong-Yun Kang, Jeong-O Lee*, Seokwoo Jeon*, Donghwi Cho*, **Ji-Soo Jang*** Atomically Mixed Catalysts on a 3D Thin-Shell TiO₂ for Dual-Modal Chemical Detection and Neutralization, **Journal of Materials Chemistry A, 11, 34, 18195, 2023 (IF: 14.511)**
22. **Ji-Soo Jang,*** Yunsung Lim, Hamin Shin, Jihan Kim, Tae Gwang Yun,* Bi-directional water-stream behavior on multifunctional membrane for simultaneous energy generation and water purification, **Advanced Materials, 35, 7, 2370044, 2023, Front-cover featured, (IF: 32.086)**
21. Hyung-Jin Choi, Jun Young Lee, Soo Young Jung, Ruiguang Ning, Min-Seok Kim, Sung-Jin Jung, Sung Ok Won, Seung-Hyub Baek*, **Ji-Soo Jang***, Epitaxial growth of β -Ga₂O₃ thin films on Si with YSZ buffer layer, **ACS Omega, 7, 48, 43603, 2022 (IF: 4.132)**
20. Chae Soohwan†, Jaewan Ahn, **Ji-Soo Jang†***, Il-Doo Kim*, “Thermal Shock-stabilized Catalysts on Metal Oxides: Ultrasensitive Chemiresistor”, **Applied Surface Science, 591, 1, 153460, 2022 (IF: 7.392)**
19. Jong Won Baek, Yoon Hwa Kim, Jaewan Ahn, Dong-Ha Kim, Hamin Shin, Jaehyun Ko, Seyeon Park, Chungseong Park, Euichul Shin, **Ji-Soo Jang***, Il-Doo Kim*, "Galvanic replacement reaction in perovskite oxide for superior acetylene gas sensors" **Journal of Materials Chemistry A, 10, 23282, 2022 (IF: 14.511)**
18. **Ji-Soo Jang**, Lea R. Winter, Changwoo Kim, John Fortner*, Menachem Elimelech*, "High Precision Separation Membranes for Selective Environmental Gas Sensors" **2021, 3, 7, 547-560, Trends in Chemistry (IF: 22.448, Cell press)**
17. **Ji-Soo Jang**, Jun Kyu Kim, Kyeonghak Kim, Wan-Gil Jung, Chasung Lim, Sangwoo Kim, Dong-Ha Kim, Bong-Joong Kim*, Jeong Woo Han*, WooChul Jung* and Il-Doo Kim*, “Dopant-driven Positive Reinforcement in an Ex-solution Process: New Strategy to Develop Highly Capable and Durable Catalytic Materials” **Advanced Materials, 32, 46, 2003983, 2020 (IF: 32.086), In-side cover featured**
16. Donghwi Cho, **Ji-Soo Jang†**, Il-Doo Kim*, Seokwoo Jeon* “Focused Electric-field Polymer Writing: toward Ultralarge, Multi-stimuli-responsive Membranes” **ACS Nano, 14, 9, 11394, 2020 (IF: 18.027)**
15. Tae Gwang Yun†, **Ji-Soo Jang†**, Jun Young Cheong, Il-Doo Kim*, “Organism epidermis/plant-root inspired

ultra-stable supercapacitor for large-scale wearable energy storage applications” **Nano Energy**, **82**, 105776, 2021 (IF: 19.069)

14. **Ji-Soo Jang**, Hong Ju Jung, Sanggyu Chong, Dong-Ha Kim, Jihan Kim*, Sang Ouk Kim*, and Il-Doo Kim*, “Two-dimensional materials decorated with ultra-thin and porous graphene oxide for high stability and selective surface activity”, **Advanced Materials**, **32** (36), 2070272, 2020 (IF: 32.086), **Frontispiece featured**
13. **Ji-Soo Jang**, Jiyoung Lee, Won-Tae Koo, Dong-Ha Kim, Hee-Jin Cho, Hamin Shin, Il-Doo Kim*, Pore-Size-Tuned Graphene Oxide Membrane as a Selective Molecular Sieving Layer: Toward Ultrasensitive Chemiresistors, **Analytical Chemistry**, **92**, 1, 957–965, 2020 (IF: 8.008)
12. **Ji-Soo Jang**, Seunghye Cho, Hyeuk Jin Han, Seok-Won Song, Sang-Joon Kim, Won-Tae Koo, Dong-Ha Kim, Hyeonsu Jeong, Yeon Sik Jung and Il-Doo Kim*, “Universal Synthesis of Porous Inorganic Nanosheets via Graphene-Cellulose Templating Route”, **ACS Applied Materials & Interfaces**, **11**, 37, 34100, 2019 (IF: 10.383)
11. **Ji-Soo Jang**, Sang-Eun Lee, Seon-Jin Choi, Won-Tae Koo, Dong-Ha Kim, Hamin Shin, Hee Jung Park* and Il-Doo Kim*, “Heterogeneous, Porous 2D Oxide Sheets via Rapid Galvanic Replacement: Toward Superior HCHO Sensing Application”, **Advanced Functional Materials**, **29**, 42, 1903012, 2019 (IF: 19.924), **Inside-cover featured**
10. **Ji-Soo Jang**, Hayoung Yu, Seon-Jin Choi, Won-Tae Koo, Dong-Ha Kim, Yong-Jin Jeong, Joon-Young Kang, Hyeonsu Jung*, Il-Doo Kim*, “Heterogeneous Metal Oxide–Graphene Thorn-Bush Single Fiber as a Freestanding Chemiresistor”, **ACS Applied Materials & Interfaces**, **11** (10), 10208, 2019 (IF: 10.383)
9. **Ji-Soo Jang**[†], Young-Woo Lim[†], Dong-Ha Kim[†], Daewon Lee, Won-Tae Koo, Hyunhwan Lee, Byeong-Soo Bae*, Il-Doo Kim*, “Glass-fabric reinforced Ag nanowire/siloxane composite heater substrate: sub-10 nm metal@metal oxide nanosheet for sensitive flexible sensing platform”, **Small**, **14** (44), 1802260, 2018, (IF: 15.153) **Front-cover featured**
8. **Ji-Soo Jang**, Won-Tae Koo, Dong-Ha Kim, Il-Doo Kim*, “In-situ coupling of multidimensional MOFs for heterogeneous metal-oxide architectures: toward sensitive chemiresistors”, **ACS Central Science**, **4** (7), 929, 2018 (IF: 18.728)
7. Ji-Won Jung[†], **Ji-Soo Jang**[†] (co-first author), Tae Gwang Yun, Ki Ro Yoon, Il-Doo Kim*, “3D nanofibrous air electrode assembled with carbon nanotubes bridged hollow Fe₂O₃ nanoparticles for high performance lithium-oxygen batteries”, **ACS Applied Materials & Interfaces**, **10** (7), 6531, 2018 (IF: 10.383)
6. **Ji-Soo Jang**, Shaopeng Qiao, Seon-Jin Choi, Gaurav Jha, Alana Ogata, Won-Tae Koo, Dong-Ha Kim, Il-Doo Kim*, Reginald M. Penner*, “Hollow Pd-Ag composite nanowire for fast responding and transparent hydrogen sensors”, **ACS Applied Materials & Interfaces**, **9** (45), 39464, 2017 (IF: 10.383)
5. **Ji-Soo Jang**, Seon-Jin Choi, Won-Tae Koo, Il-Doo Kim*, “Metal organic framework-templated chemiresistor: sensing type transition from p-to-n using hollow metal oxide polyhedron via galvanic replacement”, **Journal of the American Chemical Society (JACS)**, **139** (34), 11868 2017 (IF: 16.383)
4. **Ji-Soo Jang**, Seon-Jin Choi, Won-Tae Koo, Sang-Joon Kim, JunYoung Cheong and Il-Doo Kim*, “Elaborate manipulation for sub-10 nm hollow catalyst sensitized heterogeneous oxide nanofibers for room temperature chemical sensors” **ACS Applied Materials & Interfaces**, **9** (29), 24821-24829, 2017 (IF: 10.383)
3. **Ji-Soo Jang**, Sunmoon Yu, Seon-Jin Choi, Sang-Joon Kim, Won-Tae Koo, and Il-Doo Kim*, “Metal chelation assisted in-situ migration and functionalization of catalysts on peapod-like hollow SnO₂ toward superior chemical sensor”, **Small**, **12** (43), 5989-5997, 2016 (IF: 15.153)
2. **Ji-Soo Jang**, Seon-Jin Choi, Sang-Joon Kim, Meggie Hakim, Il-Doo Kim*, “Rational design of highly porous SnO₂ nanotubes functionalized with biomimetic nanocatalysts for direct observation of simulated diabetes”, **Advanced Functional Materials**, **26**, 4740-4748, 2016 (IF: 18.808)
1. **Ji-Soo Jang**, Sang-Joon Kim, Seon-Jin Choi, Nam-Hoon Kim, Meggie Hakim, Avner Rothschild and Il-Doo Kim, “Thin-walled SnO₂ nanotubes functionalized with Pt and Au catalysts via protein templating route and their selective detection of acetone and hydrogen sulfide molecules”, **Nanoscale**, **7**, 16417-16426, 2015 (IF: 8.307)

[Co-author]

62. Danyning Shao, Carl Schlagnhauser, Ananda Bandara, Paul D Esker, Seong H Kim, Joshua Kellogg, **Ji-Soo Jang**, Seogchan Kang, Plant-Associated Volatile Organic Compound (VOC) Database (PVD): A Resource Supporting Research on VOCs Produced by Plants and Plant-Associated Microbes, **PhytoFrontiers**, **Accepted**, **2024**
61. Changho Lee, Chang-Kyu Hwang, Jungwon An, **Ji-Soo Jang**, Bonjae Koo, Jong Min Kim, Kihyun Shin, Caroline Sunyong Lee, Ki Ro Yoon, Performance Enhancement of Rechargeable Zinc-Air Battery through Synergistic Ex-solution of Multi-component Pt/CoWO_{4-x} Nanofiber in Hybrid Catalysts, **Applied Catalysis B: Environment and Energy**, **358**, 124371, **2024**
60. Jong Won Baek, Seunghye Han, Sang-Eun Lee, Jaewan Ahn, Chungseong Park, Jong Seok Nam, Yoon Hwa Kim, Euichul Shin, Minhyun Kim, **Ji-Soo Jang**, Hee Jung Park, Jihan Kim, Il-Doo Kim, Cobalt-Doped Ceria Sensitizer Effects on Metal Oxide Nanofibers: Heightened Surface Reactivity for High-Performing Chemiresistive Sensors, **ACS Nano**, **Accepted**, **2024**
59. Jaehyeong Bae, Jiyoung Lee, Won-Tae Hwang, Doo-Young Youn, Hyunsub Song, Jaewan Ahn, Jong-Seok Nam, **Ji-Soo Jang**, Doo-won Kim, Woosung Jo, Taek-Soo Kim, Hyeon-Jeong Suk, Pan-Kee Bae, Il-Doo Kim, Advancing breathability of respiratory Nanofilter by optimizing pore structure and alignment in Nanofiber Networks, **ACS Nano**, **18**, 2, 1371, **2023**
58. Yooyeon Jo, Ji Young Lee, Eunpyo Park, Hyun Soo Kim, Hyung-Jin Choi, Seungkuk Mun, Yunseok Kim, Sunghoon Hu, Jung Ho Yoon, **Ji-Soo Jang**, Chong-Yun Kang, Seung-Hyub Baek, Jeong Min Baik, Joon Young Kwak*, and Hyun-Cheol Song*, Epitaxial PZT Film-based Ferroelectric Field-Effect Transistors for Artificial Synapse, **ACS Applied Electronic Materials**, **5**, 8, 4549, **2023**
57. Nguyen X. Duong, **Ji-Soo Jang**, Min-Hyoung Jung, Jong-Seong Bae, Chang W. Ahn, Jong S. Jin, Kyuwook Ihm, Gyeheyon Kim, So Y. Lim, Jongmin Lee, Dang D. Dung, Soonil Lee, Young-Min Kim, Sanghan Lee, Sang M. Yang, Changhee Sohn, Ill W. Kim, Hu Y. Jeong, Seung-Hyub Baek, and Tae H. Kim*, Ultrahigh dielectric permittivity in oxide ceramics by hydrogenation, **Science Advances**, **9**, 8, eadd8328, **2023**
56. Dong-Gyu Lee , Joonchul Shin, Sunghoon Hur, Hyun Soo Kim, Jiyoung Lee , Inki Jung, **Ji-Soo Jang**, Sahn Nahm, Chong-Yun Kang, Sangtae Kim, Il-Ryeol Yoo, Kyung-Hoon Cho*, and Hyun-Cheol Song*, Autonomous Resonance-tuning Mechanism for Environmental Adaptive Energy Harvesting, **Advanced Science**, **accepted**, **2023**
55. Hyo-KyungShim, ShuailingSun, Hyun-SooKim, Dong-GyuLee, Yeon-JeongLee, **Ji-Soo Jang**, Kyung-Hoon Cho, Jeong Min Baik, Chong-YunKang, YonggangLeng, Sunghoon Hur*, Hyun-Cheol Song*, On a nonlinear broadband piezoelectric energy harvester with a coupled beam array, **Applied Energy**, **328**, 120129, **2022**
54. Hyung-Jin Choi, Jinhyuk Jang, Soo Young Jung, Ruiguang Ning, Min-Seok Kim, Sung-Jin Jung, Jun Young Lee, Jin Soo Park, Byung Chul Lee, **Ji-Soo Jang**, Seong Keun Kim, Kyu Hyoung Lee, June Hyuk Lee, Sung Ok Won, Yulan Li, Shenyang Hu , Si-Young Choi , and Seung-Hyub Baek*, Thermal stress-assisted annealing to improve the crystalline quality of an epitaxial YSZ buffer layer on Si, **Journal of Materials Chemistry C**, **10**, 27, 10027, **2022**
53. Euichul Shin, Dong-Ha Kim, Jun-Hwe Cha, Seolwon Yun, Hamin Shin, Jaewan Ahn, **Ji-Soo Jang**, JongWon Baek, Chungseong Park, Jaehyun Ko, Seyeon Park, Sung-Yool Choi*, and Il-Doo Kim*, Ultra-Fast Ambient-air Ex-solution on Metal Oxide via Momentary Photothermal Effect, **ACS Nano**, **16**, 11, 18133, **2022**
52. Dong-Ha Kim†, Sanggyu Chong†, Chungseong Park, Jaewan Ahn, **Ji-Soo Jang**, Jihan Kim* and Il-Doo Kim*, “Oxide/ZIF-8 Hybrid Nanofiber Yarns: Heightened Surface Activity for Exceptional Chemiresistive Sensing”, **Advanced Materials**, **34**, 10, **2022**
51. Dong-Ha Kim, Jun-Hwe Cha, Giwoong Shim, Yoon Hwa Kim, **Ji-Soo Jang**, Hamin Shin, Jaewan Ahn, Sung-Yool Choi*, Il-Doo Kim*, “Flash-thermochemical engineering of phase and surface activity on metal oxides”, **Chem**, **8**, 4, 1014, **2022**
50. Hamin Shin, Jaehyun Ko, Chungseong Park, Dong-Ha Kim, Jaewan Ahn, **Ji-Soo Jang**, Yoon Hwa Kim, Su-Ho Cho, Hionsuck Baik, Il-Doo Kim*, “Sacrificial Template-Assisted Synthesis of Inorganic Nanosheets with High-Loading Single-Atom Catalysts: A General Approach”, **Advanced Functional Materials**, **2110485**, **2021**

49. Hyeuk Jin Han, Seunghee H Cho, Sangjun Han, **Ji-Soo Jang**, Gyu Rac Lee, Eugene N Cho, Sang-Joon Kim, Il-Doo Kim, Min Seok Jang, Harry L Tuller, Judy J Cha, Yeon Sik Jung*, “Synergistic Integration of Chemo-Resistive and SERS Sensing for Label-Free Multiplex Gas Detection”, **Advanced Materials**, **33**, **44**, **2105199**, **2021**
48. Hamin Shin, Dong-Ha Kim, Wonjong Jung, **Ji-Soo Jang**, Yoon Hwa Kim, Yeolho Lee, Kiyoun Chang, Joonhyung Lee, Jongae Park, Kak Namkoong,* and Il-Doo Kim*, “Surface Activity-Tuned Metal Oxide Chemiresistor: Toward Direct and Quantitative Halitosis Diagnosis”, **ACS Nano**, **15**, **9**, **14207**, **2021**
47. Wonsik Eom, **Ji-Soo Jang**, Sang Hoon Lee, Eunsong Lee, Il-Doo Kim*, Seon-Jin Choi*, and Tae Hee Han*, “Effect of Metal/Metal Oxide Catalysts on Graphene Fiber for Improved NO₂ Sensing”, **Sensors and Actuators B: Chemical**, **334**, **1**, **130231**, **2021**
46. Chungseong Park, Won-Tae Koo, Sanggyu Chong, Hamin Shin, Yoon Hwa Kim, Hee-Jin Cho, **Ji-Soo Jang**, Dong-Ha Kim, Jiyoung Lee, Seyeon Park, Jaehyun Ko, Jihan Kim and Il-Doo Kim*, “Confinement of Ultra-Small Bimetallic Nanoparticles in Conductive Metal-Organic Frameworks via Site-Specific Nucleation”, **Advanced Materials**, **33**, **38**, **2101216**, **2021**
45. Joon-Young Kang, Won-Tae Koo, **Ji-Soo Jang**, Dong-Ha Kim, Yong-Jin Jeong, Rhee Hyun Kim, Jaewan Ahn, Seon-Jin Choi, Il-Doo Kim*, “2D Layer Assembly of Pt-ZnO Nanoparticles on Reduced Graphene Oxide for Flexible NO₂ Sensors”, **Sensors and Actuators B: Chemical**, **331**, **15**, **129371**, **2021**
44. Jun Hyuk Kim, Jun Kyu Kim, Jiapeng Liu, Antonino Curcio, **Ji-Soo Jang**, Il-Doo Kim, Francesco Ciucci* and WooChul Jung*, “Nanoparticle Ex-solution for Supported Catalysts: Materials Design, Mechanism and Future Perspectives”, **ACS Nano**, **15**, **1**, **81-110**, **2021**
43. Woo-Bin Jung, Hyunsoo Park, **Ji-Soo Jang**, Eunsoo Lim, Ju-Ye Kim, Do Youb Kim, Sungho Choi, Jungdon Suk, Yongku Kang, Il-Doo Kim, Jihan Kim, Mihye Wu*, and HeeTae Jung*, “Poly-elemental nanoparticles as catalysts for a Li–O₂ battery”, **ACS Nano**, **accepted**, **2020**
42. Dong-Ha Kim, Jun-Hwe Cha, Jee Young Lim, Jaehyeong Bae, Woosung Lee, Ki Ro Yoon, Chanhon Kim, **Ji-Soo Jang**, Wontae Hwang, and Il-Doo Kim*, “Colorimetric Dye-loaded Nanofiber Yarn: Eye-readable and Weavable Gas Sensing Platform”, **ACS Nano**, **14**, **12**, **16907**, **2020**
41. Hamin Shin, Wan-Gil Jung, Dong-Ha Kim, **Ji-Soo Jang**, Yoon Hwa Kim, Won-Tae Koo, Jaehyeong Bae, Chungseong Park, Su-Ho Cho, Bong Joong Kim and Il-Doo Kim*, “Single-Atom Pt Stabilized on One-Dimensional Nanostructure Support via Carbon Nitride/SnO₂ Heterojunction Trapping”, **ACS Nano**, **14** (**9**), **11394**, **2020**
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RESEARCH PRESENTATIONS

• INVITED TALKS

1. **Ji-Soo Jang**, “Electrospinning and Stretchable Chemical Sensors” **Massachusetts Institute of Technology (MIT), Cambridge, USA, Dec. 2015.**
2. **Ji-Soo Jang**, “Aligned Hollow Metal Nanowires Based Chemical Sensors” **UC Irvine, Irvine, CA 92697, USA, April. 2017.**

3. **Ji-Soo Jang**, “Fundamentals and Applications of Electrospinning” **National NanoFab Center, Oct. 2017**
4. **Ji-Soo Jang**, “Multi-dimensional Gas Sensors for Wearable Application” **2019 Korean Sensor Conference, Mar. 2019**
5. **Ji-Soo Jang**, “Development of Chemical Sensors for Next-generation Diagnostic System” **Korea Institute of Science and Technology (KIST), Biomedical Research Institute, Oct. 2019**
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11. **Ji-Soo Jang, Il-Doo Kim***, “Universal Synthesis of Porous Inorganic Nanosheets via Animal Cellulose-Graphene Oxide Templates”, **F2Cp2 2019, Swiss, July, 2019 (Poster)**
10. **Ji-Soo Jang, Il-Doo Kim***, “In-situ growth of WO₃ nanorods on porous graphene-tunicate composite fiber for sensitive chemiresistor”, **2019 Electrospinning conference, China, June, 2019 (Oral)**
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PROFESSIONAL SERVICES

- ✓ **Reviewer Boards:** Sensors, MDPI (Switzerland) 2020-Present
- ✓ **Journal Reviewer:** Science Advances (American Association for the Advancement of Science), ACS Nano (American Chemical Society), Advanced Functional Materials (Wiley), ACS Applied Materials & Interfaces (American Chemical Society), Advanced Materials & Technologies (Wiley), Environmental Science: Nano (RSC), Sensors (MDPI)

REFERENCES

1. Prof. Il-Doo Kim (Ph.D. Thesis Advisor)

Professor, Department of Materials Science and Engineering, KAIST
Department of Material Science Engineering, KAIST, South Korea

Phone: +82-42-350-3329

Homepage: <http://advnano.kaist.ac.kr>

E-mail: idkim@kaist.ac.kr

2. Prof. Menachem Elimelech (Postdoctoral Associate Advisor)

Sterling Professor of Chemical and Environmental Engineering

Department of Chemical and Environmental Engineering, Yale University, USA

Phone: +1-203-432-2789

Homepage: <https://elimelechlab.yale.edu/>

E-mail: menachem.elimelech@yale.edu

3. Prof. John Fortner (Postdoctoral Associate Co-advisor)

Associate Professor of Environmental and Chemical Engineering

Department of Chemical and Environmental Engineering, Yale University, USA

Homepage: <https://seas.yale.edu/faculty-research/faculty-directory/john-fortner>

E-mail: john.fortner@yale.edu

4. Prof. WooChul Jung (Ph.D. Thesis Committee)

Associate Professor, Department of Materials Science and Engineering

Department of Material Science Engineering, KAIST, South Korea

Phone: +82-42-350-3314

Homepage: <https://www.wjunggroup.com/>

E-mail: wcjung@kaist.ac.kr

5. Prof. Reginald M. Penner (Visiting Scholar Advisor)

Chancellor's Professor of Chemistry

Department of Chemistry, UC Irvine, USA

Phone: +1-949-824-8572

Homepage: <https://www.chem.uci.edu/~rmpenner/PennerGroup.html>

E-mail: rmpenner@uci.edu