# Junseong Ahn

2024

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## RESEARCH INTERESTS

My primary research interests lie in the design and manufacturing of micro/nanostructures and devices, and their applications to the high-performance transducers such as sensors, actuators, and energy harvesters. Within these research directions, I have mainly worked on two following research areas: **(1) Development of the atypical micro/nano-structures manufacturing platform with high-throughput based on the photolithography, nanotransfer printing, and nanoimprinting lithography, (2) Development of the high-performance transducers (e.g., physical/chemical/bio sensors and energy harvesters) based on the rationally designed functional micro/nano-structures.**

### 1.Development of the atypical micro/nano-structures and their advanced fabrication process with high-throughput based on the photolithography, nanotransfer printing, and nanoimprinting lithography

Atypical 2D/3D micro/nano-structures (e.g., heterogeneous structure, hierarchical structure, suspended structure, and multi-layered structures) and their universal and reproducible methods are of great importance for the production of electrical systems, optical devices, sensing devices, and energy harvesters. To satisfy this demand, I have been studying various 2D/3D micro/nano-fabrication methods based on the conventional processes and their nanotransfer printing on rigid/soft substrates (ACS Nano 2020, 14, 2191; Nanoscale 2022, 14, 1136) as well as layer-by-layer 3D nanoimprinting (ACS Nano 2021, 15, 503). In particular, in our group, 3D nanostructuring methods using external stimuli such as heat (ACS Appl. Mater. & Interfaces 2021, 13, 3358) and mechanical input (Nano Energy 2021, 85, 105978; Nat. Commun. 2023, 14, 833), which are based on the shape-morphing of 2D nanostructures printed by conventional 2D/3D printing methods, and their applications (Small Methods 2022, 2200248; Adv. Energy Mater. 2022, 2201341) have been recently investigated further owing to their design diversity and broad applicability.

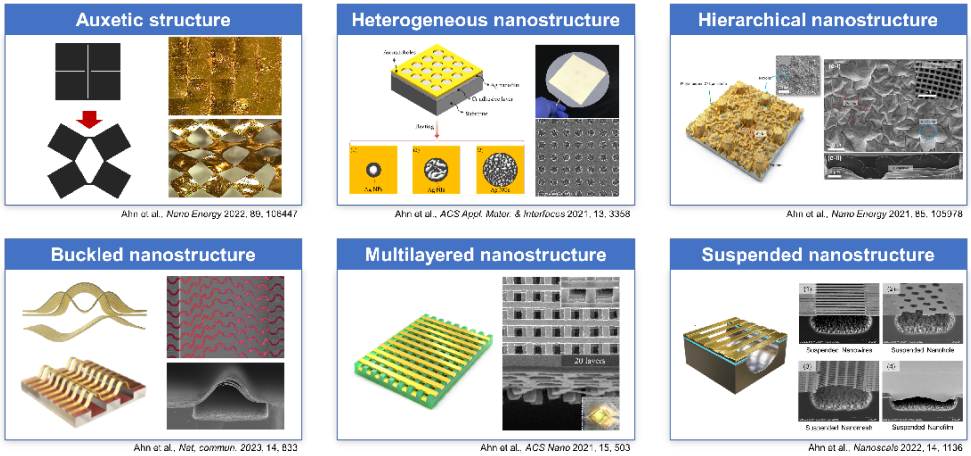


Figure 1. Various atypical micro/nano-structures

**2.Development of the high-performance transducers (e.g., physical/chemical/bio sensors and energy harvesters) based on the rationally designed functional micro/nano-structures.**

Rationally designed functional micro/nano-structures exhibit distinct physical and chemical properties, enabling their applications to physical/chemical/bio sensors, soft actuators, and energy harvesters with high-performance and high-density device integration. In detail, I'm working on the design and fabrication of self-powered strain sensor for human motion monitoring (Adv. Funct. Mater. 2023, 33, 2208792; Nano Energy 2022, 89, 106447), triboelectric nanogenerator for sustainable ocean monitoring systems (Adv. Energy Mater. 2022, 2201341), electrothermal actuator for soft robotics (Adv. Mater. Technol. 2020, 5, 1900997), surface-enhanced Raman spectroscopy substrate for the detection of biomolecules (ACS Nano 2021, 15, 503; ACS Appl. Mater. & Interfaces 2021, 13, 3358), and high-performance gas sensors for the detection of flammable/explosive/toxic gases (Nat. Commun. 2023, 14, 833; Nanoscale 2022, 14, 1136; ACS Appl. Mater. & Interfaces 2020, 12, 13338) based on the atypical 2D/3D micro/nano-structures (e.g., heterogeneous structure, hierarchical structure, suspended structure, and multi-layered structures).

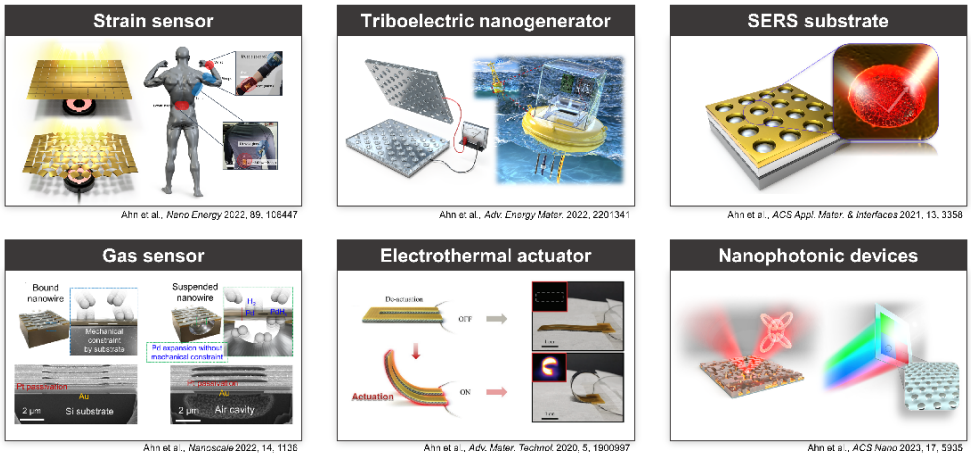


Figure 2. Various high-performance transducers based on the rationally designed functional micro/nano-structures

## EDUCATION BACKGROUND

**Ph.D. IN MECHANICAL ENGINEERING (Feb 2023)**

Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea
*Thesis Title*: "Mechanically/Thermally Induced Shape-Morphing for Atypical Micro/Nanostructures"
*Advisor*: Professor Inkyu Park

**M.S. IN MECHANICAL ENGINEERING (Aug 2019)**

Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea
*Thesis Title*: "Functional fabric heater based on silver nanowire/carbon nanotube composites"
*Advisor*: Professor Inkyu Park

**B.S. IN MECHANICAL ENGINEERING (Aug 2017)**

Hanyang University, Seoul, Republic of Korea

## AWARDS & HONORS

- Academic scholarship, Hanyang University, 2013-2017

- Top 100 Award of National research and development in 2019, Korea Ministry of Science and ICT, Oct 2019 (국가연구개발 우수성과 100 선, 과학기술정보통신부 최기영 장관, 2019.10.04)
- Best M.Sc. Thesis Award, 2020, KAIST
- 기계연구원장상, 2023, KAIST
- Young-Han Kim Global Leadership Award, 2021, KAIST
- Best Paper Award, KMEMS, Aug. 2020
- Best Poster Award, KIEEME, Jul. 2021
- Best Poster Award, KSMTE, Jul. 2021
- Best Poster Award, KEMS, Apr. 2022
- Best Poster Award, MRS spring, May. 2022
- Best Paper Award, KMEMS, Nov. 2023

## RESEARCH&PROFESSIONAL EXPERIENCES

**ASSISTANT PROFESSOR (Mar 2024 – )**
Department of Electro-Mechanical Systems Engineering, Korea University, KOREA

**POSTDOCTORAL RESEARCHER (May 2023 – Feb 2024)**
Department of Nano Manufacturing Technology**,** Korea Institute of Machinery and Materials (KIMM), KOREA

**GRADUATE STUDENT RESEARCHER (Sept 2017 - Feb 2023)**
Micro and Nano Transducers (MINT) Laboratory, School of Mechanical Engineering**,** Korea Advanced Institute of Science and Technology (KAIST), KOREA

- Development of the high-performance transducers (e.g., physical/chemical/bio sensors, soft actuators, heaters, thermoacoustic speakers, and energy harvesters) based on the rationally designed micro/nano-scale structures

**STUDENT RESEARCHER (Sept 2017 - Feb 2021)**
Department of Nano Manufacturing Technology**,** Korea Institute of Machinery and Materials (KIMM), KOREA

- Development of the atypical micro/nano-structures based on the nanotransfer printing and nanoimprinting lithography for the advanced electronics, sensing platforms, and optical applications
- Development of the advanced nanofabrication process with high-throughput

## PROFESSIONAL ACTIVITIES & SERVICES

**ACADEMIC SOCIETY MEMBERSHIP**

- 산학협력이사, 한국센서학회 (2024–)
- 나노마이크로시스템 분과 이사, 한국생산제조학회 (2024–)

## COURSES TAUGHT

**Assistant Professor, Department of Electro-Mechanical Systems Engineering, Korea University**

- EMSE453 Design of Fundamental Mechatronic System Components (기전시스템요소설계): Spring 2024 (English)

- EMSE215 Engineering Mathematics (공업수학): Spring 2024 (English)
- EMSE455 Capstone Design: Spring 2024

## PUBLICATIONS

### INTERNATIONAL JOURNAL PUBLICATIONS

*__Underlined & bold: first or corresponding author__ / bold: co-author

***Articles published and accepted***

1. **J. Ahn**†, H. Jang†, Y. Jeong†, S. Choi, J. Ko, S. H. Hwang, J.-H. Jeong*, Y. S. Jung*, I. Park*, "Illuminating Recent Progress in Nanotransfer Printing: Core Principles, Emerging Applications, and Future Perspectives", *Advanced Science*, 2024, 11, 2303704 ***(Front cover article)***
2. **J. Ahn**†, H. Han†, J.-H. Ha†, Y. Jeong, Y. Jung, J. Choi, S. Cho, S. Jeon, J.-H. Jeong*, and I. Park*, "Micro/Nano Hierarchical Structures Physically Engineered on Surface: Analysis and Perspectives", *Advanced Materials*, 2024, 36, 2300871 ***(Inside front cover article)***
3. Y. Jung, J. Gu, J. Yeo, W. Lee, H. Han, J. Choi, J.-H. Ha, **J. Ahn**, H. Cho, S. Ryu, and I. Park*, "Highly Sensitive Soft Pressure Sensors for Wearable Applications based on Composite Films with Curved 3D Carbon Nanotube Structures", *Small*, 2024, 20, 2303981
4. C. Han†, Y. Jeong†, **J. Ahn**†, T. Kim, J. Choi, J.-H. Ha, H. Kim, S. H. Hwang, S. Jeon, J. Ahn, J. T. Hong, J. J. Kim, J.-H. Jeong*, and I. Park*, "Recent Advances in Sensor–Actuator Hybrid Soft Systems: Core Advantages, Intelligent Applications, and Future Perspectives", *Advanced Science*, 2023, 10, 2302775 ***(Inside back cover article)***
5. **J. Ahn**†, J. Gu†, Y. Jeong†, J.-H. Ha, J. Ko, B. Kang, S. H. Hwang, J. Park, S. Jeon, H. Kim, J.-H. Jeong*, and I. Park*, "Nanotransfer-on-things: From rigid to stretchable nanophotonic devices", *ACS Nano*, 2023, 17, 6, 5935-5942
6. **J. Ahn**, J.-H. Ha, Y. Jeong, Y. Jung, J. Choi, J. Gu, S. H. Hwang, M. Kang, J. Ko, S. Cho, H. Han, K. Kang, J. Park, S. Jeon, J.-H. Jeong*, and I. Park*, "Nanoscale Three-Dimensional Fabrication Based on Mechanically Guided Assembly", *Nature Communications*, 2023, 14, 833
조선비즈, 베리타스 알파 외 14 개 언론 보도 "KAIST-한국기계연구원, 차세대 3 차원 나노구조체 인쇄 기술 개발"
https://biz.chosun.com/science-chosun/technology/2023/04/04/MTO67UR6GJGX3BXK77SLQOMAQ4/?utm_source=naver&utm_medium=original&utm_campaign=biz
7. M. S. Kim†, Y. Lee†, **J. Ahn**†, S. Kim, K. Kang, H. Lim, B.-S. Bae, and I. Park*, "Skin-like Omnidirectional Stretchable Platform with Negative Poisson's Ratio for Wearable Strain–Pressure Simultaneous Sensor", *Advnaced Functional Materials*, 2023, 33, 3, 2208792 ***(Front cover article)***
8. **J. Ahn**†, J. Gu†, J. Choi†, C. Han, Y. Jeong, J. Park, S. Cho, Y. S. Oh, J.-H. Jeong, M. Amjadi*, and I. Park*, "A Review of Recent Advances in Electrically-Driven Polymer-based Flexible Actuators: Smart Materials, Structures, and Their Applications", *Advanced Materials Technologies,* 2022, 7, 2200041
9. **J. Ahn**†, J.-S. Kim†, Y. Jeong, S. Hwang, H. Yoo, Y. Jeong, J. Gu, M. Mahato, J. Ko, S. Jeon, J.-H. Ha, H.-S. Seo, J. Choi, M. Kang, C. Han, Y. Cho, C. H. Lee, J.-H. Jeong*, I.-K. Oh*, and I. Park*, "All-recyclable triboelectric nanogenerator for sustainable ocean monitoring systems", *Advanced Energy Materials,* 2022, 12, 30, 2201341 ***(Back cover article)***
뉴시스**,** 베리타스 알파 외 **24** 개 언론 보도 **"KAIST-**한국기계연 공동연구진**,** 차세대 친환경 에너지 발전 소자를 통한 해양 모니터링 기술 개발**"**

10. Y. Jung†, **J. Ahn**†, J.-S. Kim, J.-H. Ha, J. Shim, H. Cho, Y. S. Oh, Y.-J. Yoon, Y. Nam, I.-K. Oh, , J.-H. Jeong *, and I. Park*, "Spherical Micro/Nano Hierarchical Structures for Energy and Water Harvesting Devices", *Small Methods,* 2022, 6, 7, 2200248 ***(Inside cover article)***
11. Z.-J. Zhao†, **J. Ahn**†, D. Lee, C. Jeong, M. Kang, J. Choi, M. Bok, S. Hwang, J. Choi, S. Jeon, S. Park, K. Chang, J.-W. Choi, I. Park*, and J.-H. Jeong*, "Wafer-scale, highly uniform, and well-arrayed suspended nanostructures for enhancing the performance of electronic devices", *Nanoscale*, 2022, 14, 1136-1143 ***(Inside front cover article)***
12. J. Gu†, **J. Ahn**†**,** J. Jung, S. Cho, J. Choi, Y. Jeong, J. Park, S. Hwang, I. Cho, J. Ko, J.-H. Ha, Z.-J. Zhao, S. Jeon, S. Ryu, J.-H. Jeong*, and I. Park*, "Self-Powered Strain Sensor based on the Piezo-Transmittance of a Mechanical Metamaterial", *Nano Energy*, 2021, 89, 106447
13. **J. Ahn,** Z.-J Zhao, J. Choi, Y. Jeong, S. Hwang, J. Ko, J. Gu, S. Jeon, J. Park, M. Kang, D. V. D. Orbe, I. Cho, H. Kang, M. Bok, J.-H. Jeong*, and I. Park*, "Morphology-Controllable Wrinkled Hierarchical Structure and its Application to Superhydrophobic Triboelectric Nanogenerator", *Nano Energy*, 2021, 85, 105978
14. Z.-J. Zhao†, **J. Ahn**†, S. H. Hwang, J. Ko, Y. Jeong, M. Bok, Kang, J. Choi, S. Jeon, I. Park*, and J.-H. Jeong*, "Large-Area Nanogap-Controlled 3D Nanoarchitectures Fabricated via Layer-by-Layer Nanoimprint", *ACS Nano,* 2021, 15, 1, 503-514
15. Z.-J. Zhao†, **J. Ahn**†, J. Ko, Y. Jeong, M. Bok, H. Hwang, Kang, S. Jeon, J. Choi, I. Park*, and J.-H. Jeong*, "Shape-Controlled and Well-Arrayed Heterogeneous Nanostructures via Melting Point Modulation at the nanoscale", *ACS Applied Materials & Interfaces***,** 2021, 13, 2, 3358-3368 ***(Supplementary cover article)***
16. K. Hwang †, **J. Ahn**†, I. Cho, K. Kang, K. Kim, J. Choi, K. Polychronopoulou, and I. Park*, "Microporous Elastomer Filter Coated with Metal Organic Frameworks for Improved Selectivity and Stability of Metal Oxide Gas Sensors", *ACS Applied Materials & Interfaces*, 2020, 12, 11, 13338
17. **J. Ahn**, Y. Jeong, Z.-J. Zhao, S. Hwang, K. Kim, J. Ko, S. Jeon, J. Park, H. Kang, J.-H. Jeong*, and I. Park*, "Heterogeneous conductance-based locally shape-morphable soft electrothermal actuator", *Advanced Materials Technologies*, 2020, 5, 1900997 ***(Back cover article)***
18. **J. Ahn**, J. Gu, B. Hwang, H. Kang, S. Hwang, S. Jeon, J.H. Jeong*, and I. Park*, "Printed fabric heater based on Ag nanowire/carbon nanotube composites", *Nanotechnology*, 2019, 30, 45
19. C. Han, J. Choi, **J. Ahn**, H. Kim, J.-H. Ha, H. Han, S. Cho, Y. Jeong, J. Gu, and I. Park*, "Spike-based Self-Calibration for Enhanced Accuracy in Self-powered Pressure Sensing", *Advanced Materials Technologies*, 2023, 8, 19, 2301199
20. J.-H. Ha, Y. Jeong, **J. Ahn**, S. H. Hwang, S. Jeon, D. Kim, J. Ko, B. Kang, Y. Jung, J. Choi, H. Han, J. Gu, S. Cho, H. Kim, M. Bok, S. A. Park, J.-H. Jeong*, and I. Park*, "A wearable colorimetric sweat pH sensor-based smart textile for health state diagnosis", *Materials Horizons*, 2023, 10, 4163-4171 ***(Back cover article)***
21. Y. Jeong, H.-J. Kang, M. Bok, S. H. Hwang, S. Jeon, **J. Ahn**, J. Ko, J.-H. Ha, J. W. Park, W. Choi, I. Park, N. Park*, and J.-H. Jeong*, "A Mobile Two-Dimensional Ultrasound Focusing System for Personalized Healthcare Applications Through a Dodecagonal Quasicrystal Patterned Planar Lens", *Advanced Materials Technologies*, 2023, 8, 16, 2202173 ***(Inside back cover article)***
22. D. Choi, Y. Lee, Z.-H. Lin, S. Cho, M. Kim, S. Soh, C. K. Ao, C. K. Jeong, C. Sohn, M. Lee, J. Lee, J. Ryu, S. Lee, P. Parashar, I.-D. Kim, J. Ahn, Y. Cho, P. S. Lee, F. Jiang, S.-j. Kim, G. K., H.-C. Song, H. S. Kim, J. Nah, M. Kim, W. Kim, Y. T. Park, H. G. Menge, J. Hao, W. Xu, J.-H. Lee, H. Park, S.-W. Kim, D.-M. Lee, J.-Y. Park, X. Zhang, Y. Zi, R. Guo, J. Cheng, Z. Yang, Y. Xie, S. Lee, J. Chung, I.-K. Oh, J.-S. Kim, T. Cheng, Q. Gao, G. Cheng, G. Gu, M. Shim, J. Jung, C. Yun, C. Zhang, G. Liu, Y. Chen, S. Kim, X. Chen, J. Hu, X. Pu, Z. H. Guo, X. Wang, J. Chen, X. Xiao, X. Xie, M. Jarin, H. Zhang, Y.-C. Lai, T. He, H. Kim, I. Park, **J. Ahn**, N. D. Huynh, Y. Yang, Z. L. Wang*, Jeong Min Baik*, and Dukhyun Choi*,* "Recent advances in triboelectric nanogenerators: from technological progress to commercial applications", *ACS Nano*, 2023, 17, 12, 11087-11219

23. L. Wu, **J. Ahn**, J. Choi, J. Gu, X. Li, O. Gul, Z.-J. Zhao, L. Qian, B. Yu*, and I. Park*, "Customizable Self-powered Pressure Sensor based on Piezo-transmittance of Tilted Structures" , *Nano Energy*, 2023, 109, 108299
24. G. Lee, J. Choi, **J. Ahn**, S. Cho, and I. Park*, "Piezo-transmissive Structure using Multi-Layered Heterogeneous Film for Optical Transmittance Modulation", *ACS Applied Materials & Interfaces*, 2023, 15, 16, 20531-20540
25. J.-H. Ha, J. Y. Kim, D. Kim, **J. Ahn**, Y. Jeong, J. Ko, S. Hwang, S. Jeon, Y. Jung, J. Gu, H. Han, J. Choi, M. Bok, S. A. Park, Y. S. Cho, J.-H. Jeong*, and I. Park*, "Multifunctional Micro/Nanofiber Based-Dressing Patch with Healing, Protection, and Monitoring Capabilities for Advanced Wound Care", *Advanced Materials Technologies,* 2023, 8, 7, 2201765 ***(Back cover article)***
26. D. V. D. Orbe, M. Kang, I. Cho, J. Choi, J. Park, O. Gul, **J. Ahn**, D.-S. Lee*, and I. Park*, "Low-Power, Multi-Transduction Nanosensor Array for Accurate Sensing of Flammable and Toxic Gases", *Small Methods,* 2023, 7, 3, 2201352 ***(Inside back cover article)***
27. Y. Jeong, **J. Ahn**, J.-H. Ha, J. Ko, S. Hwang, S. Jeon, M. Bok, J.-H. Jeong*, and I. Park*, "Biomimetic, Programmable, and Part-by-part Maneuverable Single-body Shape Morphing Film", *Advanced Intelligent Systems,* 2023, 5, 3, 2200293 ***(Inside front cover article)***
28. S. Cho, Y.S. Oh, H. Han, H. Park, S.-U. Lee, J.-H. Kim, S.W. Jeon, M. Wang, R. Avila, Z. Xie, K. Ko, M. Park, J. Lee, M. Choi, J.-S. Lee, W.G. Min, B.-J. Lee, S. Lee, J. Choi, J. Gu, J. Park, M.S. Kim, **J. Ahn**, O. Gul, C. Han, K. Lee, S. Kim, K. Kim, J. Kim, C.-M. Kang, J. Ko, S.S. Kwak, S. Kim, D.Y. Choi, S. Jeon, H.J. Sung, Y.B. Park, Y.T. Choi, M. Je, and I. Park*. "Wireless, multimodal sensors for continuous measurement of pressure, temperature, and hydration of patients in wheelchair", *npj Flexible Electronics,* 2023, 7, 8
29. M. Bok, Z.-J. Zhao, S. Hwang, **J. Ahn**, J. Ko, J.-Y. Jung, J. Lee, S. Jeon, J.-H. Jeong*, "Functional Asymmetry-Enabled Self-Adhesive Film via Phase Separation of Binary Polymer Mixtures for Soft BioIntegrated Electronics", *ACS Nano,* 2022, 16, 11, 18157-18167
30. J.-S. Kim†, J. Kim†, J.-N. Kim, **J. Ahn**, J.-H. Jeong, I. Park, D. Kim*, and I.-K. Oh* "Collectively Exhaustive Hybrid Triboelectric Nanogenerator Based on Flow-Induced Impacting-Sliding Cylinder for Ocean Energy Harvesting", *Advanced Energy Materials*, 2022, 12, 3, 2103076 ***(Inside front cover article)***
31. M. Bok, Z.-J. Zhao, S. Hwang, Y. Jeong, J. Ko, **J. Ahn**, J. Lee, S. Jeon, and J.-H. Jeong*, "Biocompatible all-in-one adhesive needle-free cup patch for enhancing transdermal drug delivery", *ACS Applied Materials & Interfaces*, 2021, 13, 48, 58220-58228 ***(Supplementary cover article)***
32. J. Choi, C. Han, S. Cho, K. Kim, **J. Ahn**, D.D. Orbe, I. Cho, Z.-J. Zhao, Y. Oh, H. Hong, S. Kim, and I. Park*, "Customizable, Conformal, and Stretchable 3D Electronics via Pre-distorted Pattern Generation and Thermoforming", *Science Advances*, 7 (42), eabj0694
33. O. Gul, K. Kim, J. Gu, J. Choi, D.D. Orbe, **J. Ahn**, and I. Park*, "Sensitivity Controllable Liquid Metal-based Pressure Sensor for Wearable Applications", *ACS Applied Electronic Materials*, 2021, 3, 9, 4027-4036
34. J. Zhu, M. Cho, Y. Li, T. He, **J. Ahn,** J. Park, T.-L. Ren, C. Lee*, I. Park*, "Machine learning-enabled textile-based graphene gas sensing with energy harvesting-assisted IoT application", *Nano Energy*, 2021, 86, 106035
35. J. Ko, H. Kang, **J. Ahn**, Z-J. Zhao, S. Hwang, M. Bok, S. Jeon, J. Gu, J.-H. Ha, J. Rho, J.-H. Jeong*, and I. Park*, "Biocompatible Nanotransfer Printing Based on Water Bridge Formation in Hyaluronic Acid and Its Application to Smart Contact Lens", *ACS Applied Materials & Interfaces*, 2021, 13, 29, 35069-35078
36. Y. Jeong, H.-J. Kang, Z.-J. Zhao, **J. Ahn**, S. Hwang, S, Jeon, J. Ko, J.-Y. Jung, I. Park*, and J.-H. Jeong*, "Robust Nanotransfer Printing by Imidization Induced Interlocking", *Applied Surface Science*, 2021, 552, 149500

37. Y. Jeong, J. Gu, J. Byeon, **J. Ahn**, J. Byeon, K. Kim, J. Park, J. Ko, J.-H. Jeong, M. Amjadi, I. Park*, "Ultra-Wide Range Pressure Sensor based on Microstructured Conductive Nanocomposite for Wearable Workout Monitoring", *Advanced Healthcare Materials*, 2021, 10, 2001461 ***(Front cover article)***
38. K. Kim, **J. Ahn**, Y. Jeong, J. Choi, O. Gul, and I.Park*, "All-Soft Multiaxial Force Sensor Based on Liquid Metal for Electronic Skin", *Micro and Nano Systems Letters,* 2021, 9, 2
39. Z.-J. Zhao, J. Ko, **J. Ahn**, M. Bok, M. Gao, S. Hwang, H. Kang, I. Park*, and J.-H. Jeong*, "3D Layer-by-Layer Pd-containing Nanocomposite Platform for Enhancing Performance of Hydrogen Sensor", *ACS Sensors*, 2020, 5, 8, 2367 ***(Supplementary cover article)***
40. J. Choi†, D. Kwon†, B. Kim, K. Kang, J. Gu, J. Jo, K. Na, **J. Ahn**, D.D. Orbe , K. Kim, J. Park, J. Shim, J.-Y. Lee*, and I. Park*, "Wearable Self-Powered Pressure Sensor by Integration of Piezo-transmittance Microporous Elastomer with Organic Solar Cell", *Nano energy*, 2020, 74, 104749
41. J. Gu, D. Kwon, **J. Ahn**, and I. Park*, "Wearable Strain Sensor Using Light Transmittance Change of Carbon Nanotube Embedded Elastomer with Microcrack", *ACS Applied Materials & Interfaces*, 2020, 12, 9, 10908 ***(Front cover article)***
42. J. Ko, Z.-J. Zhao, S. H. Hwang, H.-J. Kang, **J. Ahn**, S. Jeon, M. Bok, Y. Jeong, K. Kang, I. Cho, J.-H. Jeong*, I. Park*, "Nanotransfer printing on textile substrate with water-soluble polymer nanotemplate", *ACS Nano*, 2020, 14, 2, 2191
43. J. Choi, D. Kwon, K. Kim, J. Park, D.D. Orbe, J. Gu, **J. Ahn**, I. Cho, Y. Jeong, Y. Oh*, and I. Park*, "Synergetic Effect of Porous Elastomer and Percolation of Carbon Nanotube Filler towards High Performance Capacitive Pressure Sensors", *ACS Applied Materials & Interfaces*, 2020, 12, 1, 1698
44. H. Hwang, Z-J Zhao, S. Jeon, H. Kang, **J. Ahn**, J.-H Jeong*, "Repeatable and metal-independent nanotransfer printing based on metal oxidation for plasmonic color filters", *Nanoscale*, 2019, 11, 23 ***(Front cover article)***

***Articles in review***

1. **J. Ahn**†, Y. Jeong†, M. Kang†, J. Ahn, S. P. Sasikala, I. Yang, J.-H. Ha, S. H. Hwang, S. Jeon, J. Gu, J. Choi, B.-H. Kang, S. O. Kim, S. Kim, J. Choi, J.-H. Jeong*, and I. Park*, "Nanoribbon Yarn with Versatile Inorganic Materials", Under review
2. J.-H. Ha†, I. Yang†, **J. Ahn**†, S. Kang, Z.-J. Zhao, Y. Jeong, H. Je, S. H. Hwang, S. Jeon, J.-H. Jeong*, S. Kim*, and I. Park*, "Nanotransfer Printing for Synthesis of Vertically Aligned Carbon Nanotubes with Enhanced Atomic Penetration", Under review
3. **J. Ahn**†, S. P. Sasikala†, Y. Jeong†, J. G. Kim, J.-H. Han, S. H. Hwang, J. Choi, B.-H. Kang, J. Ahn, J.-H. Jeong*, S. O. Kim*, and I. Park*, "High-Energy-Density Fiber Supercapacitors based on Transition Metal Oxide Nanoribbon Yarns for Comprehensive Wearable Electronics", Submitted
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