Sooyeon Cho, Ph.D.

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PROFESSIONAL APPOINTMENTS

Sungkyunkwan University (SKKU) Suwon, Korea
Assistant Professor, School of Chemical Engineering Feb. 2022 - Present

Massachusetts Institute of Technology (MIT) Cambridge, MA, USA
Postdoctoral Associate, Department of Chemical Engineering Mar. 2019 - Jan. 2022
Advisor: Prof. Michael S. Strano

University of California, Berkeley Berkeley, CA, USA
Visiting Research Fellow, Electrical Engineering and Computer Sciences Department Feb. 2016 - Sep. 2016
Advisor: Prof. Ali Javey

ACADEMIC EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) Daejeon, Korea
Ph. D. Chemical and Biomolecular Engineering Mar. 2013 - Feb. 2019
Advisor: Prof. Hee-Tae Jung

Korea Advanced Institute of Science and Technology (KAIST) Daejeon, Korea
B.S. Chemical and Biomolecular Engineering Feb. 2009 - Feb. 2013
Dual Degree in Management Science
Advisor: Prof. O Ok Park

AWARDS AND HONORS

Jan. 2023	*2023 Rising Star in Measurement Science*, American Chemical Society (ACS)
Oct. 2022	*Miwon Young Scientist Award*, The Korean Society of Industrial and Engineering Chemistry (KSIEC)
July. 2022	*Young Scientist Award*, NANO KOERA 2022
July. 2021	*Finalist*, Postdoctoral Symposium, MIT
Apr. 2018	*Best Paper Awards*, Polymer Society of Korea: Spring Meeting, Korea
Feb. 2018	*PJK Academic Achievement Award*, KAIST
Dec. 2017	*Grand Prize*, 7th Lam Research Korea Thesis Award
May. 2017	*Young Scientist Award*, European Materials Research Society (eMRS)
Apr. 2017	*Best Oral Presentation Awards*, Graduate Symposium, Department of Chemical and Biomolecular Engineering, KAIST
Apr. 2017	*Best Oral Presentation Awards*, Korean Institute of Chemical Engineers: Spring Meeting, Korea
Oct. 2016	*Best Poster Awards*, Korean Institute of Chemical Engineers: Fall Meeting, Korea
Jul. 2015	*Grand Prize*, Best Poster Awards, 13th International Nanotech Symposium, Korea
Jun. 2015	*Best Teaching Assistant Awards*, Department of Chemical and Biomolecular Engineering, KAIST
Mar. 2015	*Best Poster Awards*, Graduate Symposium, Department of Chemical and Biomolecular Engineering, KAIST

Dec. 2014 *Best Poster Awards*, 27th International Symposium on Chemical Engineering (ISChE 2014), Malaysia
Dec. 2014 *Best Teaching Assistant Awards*, Department of Chemical and Biomolecular Engineering, KAIST

TEACHNIG EXPERIENCES

Instructor, Sungkyunkwan University Suwon, Korea
ECH4001 (Instrumental Analysis of Chemical Engineering) Spring 2023
ECH3053 (Capstone Design of Chemical Engineering) Spring 2023
ECH3053 (Reaction Engineering) Fall 2022
ECH3055 (Capstone Design of Chemical Engineering) (Score: 96/100) Spring 2022

Instructor, MIT Cambridge, MA, USA
10.585 (Engineering Nanotechnology) Fall 2021

Kaufman Teaching Certificate Program (KTCP), MIT Cambridge, MA, USA
Teaching and Learning Laboratory (TLL) Fall 2020
Certificate program for MIT postdocs and graduate students to develop skills for academic teaching

Teaching Assistant, KAIST Daejeon, Korea
CBE 682 (Organic Nanostructured Materials) Fall 2016
CBE 301 (Chemical and Biomolecular Engineering Laboratory) Spring 2015
CBE 201 (Molecular Engineering Laboratory) Fall 2014

PATENTS

International Patents

6. Antibody-Free Rapid Detection of SARS-CoV-2 Proteins Using Corona Phase Molecular Recognition, Michael S. Strano, **Soo-Yeon Cho**, Xiaoa Jin, Xun Gong, Sungyun Yang, Jiaqiao Qui,
Application number: US 63/230,178 / Application date: 08.06.2021

5. Ultra-High Sensitive Target Signal Detection Method based on Noise Analysis using Deep Learning based Anomaly Detection and System Using the Same, Hee-Tae Jung, Jihan Kim, Youhan Lee, **Soo-Yeon Cho**, Hohyung Kang
Application number: US 17/120,914 / Application date: 12.14.2020

4. Fluorescence-based Detection of Protein Aggregation and Fiber Optic-based Benchtop Instrument, Michael S. Strano, Daniel Salem, Daichi Kozawa, Xun Gong, **Soo-Yeon Cho**, Freddy T. Nguyen
Application number: PCT/US2020/045827 / Publication number: WO2021/030378 / Application date: 08.11.2020

3. Fluorescence-based Detection of Protein Aggregation and Fiber Optic-based Benchtop Instrument, Michael S. Strano, Daniel Salem, Daichi Kozawa, Xun Gong, **Soo-Yeon Cho**
Application number: US 16/991,013 / Publication number: US 2021/0048392 A1 / Application date: 08.11.2020

2. Sensor Including Nanostructures and Method for Manufacturing the Same, Hee-Tae Jung, Hohyung Kang, Hee-Eun Joo, **Soo-Yeon Cho**, Woo-Bin Jung
Application number: US 16/742,987 / Publication number: US 2020/0225185 A1 / Application date: 01.15.2020

1. Method for Preparing Polarizer Panel Using Macro Pre-pattern, Hee-Tae Jung, Woo-Bin Jung, **Soo-Yeon Cho**, Moon Jong Seo
Application number: PCT/KR2015/012376 / Publication number: WO 2016/125996 A1 / Application date: 11.18.2015

Domestic Patents

4. 나노구조체를 포함하는 센서 및 이의 제조 방법, 정희태, 정우빈, **조수연**
등록번호: 10-2296769-0000 / 등록일자: 08.26.2020

3. 나노구조체를 포함하는 센서 및 이의 제조 방법, 정희태, 강호형, 주희은, **조수연**, 정우빈
출원번호: 10-2020-0005527 / 출원일자: 01.15.2020

2. 딥러닝 기반 이상징후 감지 기법을 이용한 노이즈 분석 기반 초고감도 표적신호 검출 방법 및 시스템, 정희태, 김지한, 이유한, **조수연**, 강호형
출원번호: 10-2019-0167641 / 출원일자: 12.16.2019

1. 매크로 프리패턴을 이용한 편광 패널의 제조방법, 정희태, 정우빈, **조수연**, 서문종
출원번호: 10-2015-0125411 / 출원일자: 09.04.2015

RESEARCH PROJECTS

6. Samsung Medical Center – SKKU Future Research Fund (SMC-SKKU 미래융합연구 – **책임**)
- CAR-T Therapy Model Development with Nanophotonic Single Cell Analysis
- 2022.10.01 - 2023.07.31 (50,000,000 Won)

5. SKKU Samsung Academic Research Fund (성균관대학교 삼성학술연구비 – **책임**)
- Development of Artificial Antibody Sensor to Prevent Next Pandemic
- 2022.07.01 - 2023.07.31 (20,000,000 Won)

4. NRF Basic Research Lab Fund (한국연구재단 기초연구실사업 – **공동**)
- Metaverse Multisensory Polymer-Composite Device Research Lab
- 2022.06.01 - 2025.02.28 (1,290,000,000 Won)

3. NRF Basic Research Fund (한국연구재단 기본연구사업 – **책임**)
- Nanosensor Integrated Microfluidics (NIM) Development for High-Throughput Cell Profiling
- 2022.06.01 - 2023.05.31 (68,332,000 Won)

2. SKKU AI Collaboration Fund (성균관대학교 AI융합연구 지원사업 – **책임**)
- Enhancing of Virus Sensor Performance Using Deep Learning
- 2022.03.01 - 2022.07.31 (3,000,000 Won)

1. MOHW Biomedical Global Research Training Fund (보건복지부 바이오메디컬 글로벌 인재양성 – **공동**)
- Bio-Global Value Creating Innovative Researcher Training Center
- 2022.01 - 2023.12 (412,500,000 Won)

TECHNOLOGY LICENCING

3. Technology Implementation Contract with **L2P Inc**.
Technology: Nanopatterned Gas Sensor Technology Royalty: 5,000,000 Won

2. Technology Implementation Contract with **SENSOR TECH Inc.** Contract Term: Jun. 2020 - Dec. 2025
Technology: Nanopatterned Gas Sensor Technology Royalty: 33,000,000 Won

1. Technology Consultation Contract with **Dongwoo Fine-Chem. Co.** Contract Term: May. 2015 - Sept. 2016
Technology: Low-Power Operation Si-Transistor Fabrication Technology Royalty: 44,000,000 Won

STUDENTS

Current: **4** Graduate Students
14 Undergraduate Students

Yullim Lee, Graduate Researcher, SKKU School of Chemical Engineering
Changwook Jeon, Graduate Researcher, SKKU School of Chemical Engineering
Youngho Song, Graduate Researcher, SKKU School of Chemical Engineering
Minyoung Yoon, Graduate Researcher, SKKU School of Chemical Engineering

RESEARCH INTERESTS

My research aims to tackle challenges at conventional analytical biochemistry, diagnostics, and therapeutics by leveraging state-of-the-art nanotechnology, close the longstanding gap between current biochemical sensors and real-world monitoring applications, and eventually provide new insights and information to our society.

PUBLICATIONS

† denotes equal contribution, * denotes corresponding author / h-index: **24** / Citations: **3100+**

49. Youngho Song, Yullim Lee, Tianchan Gyu, Min Yoo, Yeongseo Choi, Youneun Cho,, **Soo-Yeon Cho***, "Systematic Modelling of Cellular Lensing in nIR Fluorescent Microfluidics" *To be submitted*

48. Xun Gong, Seon-Yeong Kwak, **Soo-Yeon Cho**, Daniel Lundberg, Albert Tianxiang Liu, Michael S. Strano*, "nIR Detection of Methane Gas via Palladium Decorated Single-Walled Carbon Nanotubes" *To be submitted*

50. Seunghee Han, Yullim Lee, Jihan Kim, **Soo-Yeon Cho***, " Physicochemical Profiling of Macrophage Heterogeneity Using Deep Learning Integrated Nanosensor Chemical Cytometry " *Submitted*

47. Joonhyeok Heo†, Minchul Sung†, Tran Quang Trung†, Yulim Lee, Dohyeon Jeong, Hajeong Kim, Sandeep Kaushal, Naeung Lee*, Jin Woong Kim*, Jungheon Lee*, **Soo-Yeon Cho***, "Transducer Design Strategy for Ecosystem Monitoring" *In Revision*

46. Yoon Tae Nam†, Hohyung Kang†, Sanggyu Chong, Yong-Jae Kim, Wonmoo Lee, Jihan Kim, **Soo-Yeon Cho***, Hee-Tae Jung* "Hydrogen-Substituted Graphdiyne as a Rapid-Reversible Sensing Materials" *In Revision*

45. Mohamed R. Elmasry, Samy M. Shaban, Ahmed Elbalaawy, Eslam Hafez, **Soo-Yeon Cho***, Dong-Hwan Kim*, "Fluorogenic and Chromogenic Dual Sensor for Urine Monitoring with Hybrid Carbon-Dot Nanosensor" *ACS Applied Nano materials,* **2023**, accepted

44. Chae-Yeon Kim, Samy M. Shaban, **Soo-Yeon Cho***, Dong-Hwan Kim*, "Multicolor Diagnosis of ALP and IL-1β via silver triangular transformation for dental application" *Analytical Chemistry* **2022**, *accepted*

43. Jianqiao Cui, Xun Gong, Xiaojia Jin, **Soo-Yeon Cho**, Sungyun Yang, Roya Khosravi-Far, Michael S. Strano*, "Understanding Nucleotide Hybridization on Single-Walled Carbon Nanotube Coronas for Viral Sensing Applications" *The Journal of Physical Chemistry C* **2022**, *accepted*

42. Xun Gong, **Soo-Yeon Cho**, Sydney Kuo, Babatunde Ogunlade, Kathryn Tso, Daniel P. Salem, Michael S. Strano*, "Divalent Metal Cation Optical sensing using Single-Walled Carbon Nanotube Corona Phase Molecular Recognition", *Analytical Chemistry* **2022**, *94*, 16393-16401.

41. Hohyung Kang†, Heeeun Joo,† Junghoon Choi, Yong-Jae Kim, Yullim Lee, **Soo-Yeon Cho***, Hee-Tae Jung*, "Top-Down Approaches for Ten Nanometer Scale Nanochannel: Toward Exceptional H_2S Detection" *ACS Nano* **2022**, *16*, 17210-17219.

40. Junghoon Choi†, Benjamin Chacon†, Hyunsoo Park, Kanit Hantanasirisakul, Taewoo Kim, Kateryna Shevchuk, Juyun Lee, Hohyung Kang, **Soo-Yeon Cho**, Jihan Kim, Yury Gogotsi*, Seon Joon Kim*, Hee-Tae Jung*, "N-P-Conductor Transition of Gas Sensing Behaviors in Mo_2CTx MXene" *ACS Sensors* **2022**, 7, 2225-2234.

39. Yullim Lee, **Soo-Yeon Cho***, "Antibody-Free Nanosensor Technology for Future Global Pandemic" *BioChip Letters* **2022**, *17*, 12-14

38. **Soo-Yeon Cho**†, Xiaojia Jin†, Xun Gong, Sungyun Yang, Jianqiao Cui, Michael S. Strano*, "Antibody-Free Rapid Detection of SARS-CoV-2 Proteins Using Corona Phase Molecular Recognition to Accelerate Development Time" *Analytical Chemistry* **2021**, *93*, 14685-14693
- Featured on Journal Cover
- Highlighted in MIT News, "Carbon nanotube-based sensor can detect SARS-CoV-2 proteins" Oct 26th, 2021
- Highlighted in BBC, Medgadget, Phys.org, THE SCIENCE TIMES, E&T News, NS Medical Devices, FIERCE Biotech, Tech Explorist, Bioengineer.org, etc

37. **Soo-Yeon Cho**, Volodymyr Koman, Xun Gong, Sun Jin Moon, Pavlo Gordiichuk, Michael S. Strano*, "Nanosensor Chemical Cytometry for Characterizing the Efflux Heterogeneity of Nitric Oxide from Macrophages" *ACS Nano* **2021**, *15*, 13683-13691

36. **Soo-Yeon Cho**, Xun Gong, Volodymyr Koman, Matthias Kuehne, Sun Jin Moon, Manki Son, Tedrick Thomas Salim Lew, Pavlo Gordiichuk, Xiaojia Jin, Hadley D. Sikes, Michael S. Strano*, "Cellular Lensing and Near Infrared Fluorescent Nanosensor Arrays to Enable Chemical Efflux Cytometry", *Nature Communications* **2021**, *12*, 3079

35. Ming Liang Jin†*, Sangsik Park†, Hyukmin Kwon†, Hyeong-Jun Koh, Min Gao, Chao Tang, **Soo-Yeon Cho**, Yunpyo Kim, Shuye Zhang, Xinlin Li, Kwawoo Shin, Aiping Fu, Hee-Tae Jung*, Chi Won Ahn*, Do Hwan Kim*, "Scalable Superior Chemical Sensing Performances of Stretchable Ionotronic Skin via Pi-hole Receptor Effect" *Advanced Materials* **2021**, *33*, 2007605
- Featured on Inside Back Cover

34. Junghoon Choi, Yong-Jae Kim, **Soo-Yeon Cho**, Kangho Park, Hohyung Kang, Seon Joon Kim*, Hee-Tae Jung*, "Formation of Multiple Schottky Barriers in a Ti_3C_2/MXene Film and Its Application in Highly Sensitive Gas Sensors", *Advanced Functional Materials* **2020**, *30*, 2003998

33. Woo-Bin Jung, Sungwoo Jang, **Soo-Yeon Cho**, Hwan-Jin Jeon*, Hee-Tae Jung*, "Recent Progress in Simple and Cost-Effective Top-Down Lithography For ~10 nm Scale Nanopatterns: From Edge Lithography to Secondary Sputtering Lithography" *Advanced Materials* **2020**, *32*, 1907101
- Invited Review (Special Issue: 50th Anniversary of KAIST)
- Featured on Frontispiece

32. Daichi Kozawa†, **Soo-Yeon Cho**†, Xun Gong, Freddy T. Nguyen, Xiaojia Jin, Michael A. Lee, Heejin Lee, Alicia Zeng, Gang Xue, Jeff Schacherl, Scott Gibson, Leonela Vega, Michael S. Strano*, "A Fiber Optic Interface Coupled to Nanosensors: Applications to Protein Aggregation and Organic Molecule Quantification" *ACS Nano* **2020**, *14*, 10141-10152

31. Hohyung Kang†, **Soo-Yeon Cho**†, Jin Ryu, Junghoon Choi, Hyunah Ahn, Hee-Eun Joo, Hee-Tae Jung*, "Multi-Array Nanopattern Electronic-Nose (E-Nose) by High-Resolution Top-Down Nanolithography" *Advanced Functional Materials* **2020**, *30*, 2002486

30. **Soo-Yeon Cho**†, Youhan Lee†, Sangwon Lee, Hohyung Kang, Jaehoon Kim, Junghoon Choi, Jin Ryu, Heeeun Joo, Hee-Tae Jung*, Jihan Kim*, "Finding Hidden Signals in Chemical Sensors Using Deep Learning" *Analytical Chemistry* **2020**, *92*, 6529-6537
- Highlighted in C&EN "Neural Network Measures Gas Below a Sensor's Limit", May 6th, 2020

29. Ho Jin Lee, Joonwon Lim, **Soo-Yeon Cho**, Hongjun Kim, Chanwoo Lee, Gil Yong Lee, Suchithra Padmajan Sasikala, Taeyeong Yun, Dong Sung Choi, Mun Seok Jeong, Hee-Tae Jung, Seungbum Hong, Sang Ouk Kim*, "Intact Crystalline Semiconducting Graphene Nanoribbons from Unzipping Nitrogen-Doped Carbon Nanotubes" *ACS Applied Material Interfaces* **2019**, *11*, 38006-38015

28. Woo-Bin Jung†, **Soo-Yeon Cho**†, Geun-Tae Yun, Junghoon Choi, Yesol Kim, Minki Kim, Hohyung Kang, Hee-Tae Jung*, "Hierarchical Metal Oxide Wrinkles as Responsive Chemical Sensors" *ACS Applied Nano Materials* **2019**, *2*, 5520-5526

27. **Soo-Yeon Cho**, Hayoung Yu, Hohyung Kang, Junghoon Choi, Seoungwoong Park, Ji-Soo Jang, Hye-Jin Hong, Il-Doo Kim, Seung-Ki Lee*, Hyeon Su Jung*, Hee-Tae Jung*, "Continuous Meter-scale Synthesis of Weavable Tunicate Cellulose/Carbon Nanotube Fibers for High-Performance Wearable Sensors", *ACS Nano* **2019**, *138*, 9332-9341
- Highlighted in Seoul Economics, Donga Science, MT NEWS, IT Chosun, Financial NEWS, Medical Today, etc

26. Hyeong-Jun Koh†, Seon Joon Kim†, Kathleen Maleski, **Soo-Yeon Cho**, Yong-Jae Kim, Chi Won Ahn, Yury Gogotsi*, Hee-Tae Jung*, "Enhanced Selectivity of MXene Gas Sensors Through Metal Ion Intercalation - In-situ XRD study" *ACS Sensors* **2019**, *4*, 1365-1372

25. **Soo-Yeon Cho**†, Doohyung Jang†, Hohyung Kang, Hyeong-Jun Koh, Junghoon Choi, Hee-Tae Jung*, "Ten nm Scale WO_3/CuO Heterojunction Nanochannel for an Ultra-sensitive Chemical Sensor", *Analytical Chemistry* **2019**, *91*, 6850-6858

24. Jieung Baek†, Woo-Bin Jung†, Younghak Cho, Eunjung Lee, Geun-Tae Yoon, **Soo-Yeon Cho**, Hee-Tae Jung*, Sung Gap Im*, "Facile Fabrication of High-Definition Hierarchical Wrinkle Structures for Investigating the Geometry-Sensitive Fate Commitment of Human Neural Stem Cells" *ACS Applied Material Interfaces* **2019**, *11*, 17247-17255

23. Yoonjeong Chae, Seon Joon Kim, **Soo-Yeon Cho**, Junghoon Choi, Kathleen Maleski, Byeong-Joo Lee, Hee-Tae Jung, Yury Gogotsi, Yong-Hee Lee*, Chiwon Ahn*, "An Investigation into Factors Governing the Oxidation of Two-Dimensional Ti_3C_2 MXene" *Nanoscale* **2019**, *11*, 8387-8393

22. Rishabh Jain, Yashpal Singh, **Soo-Yeon Cho**, Suchitra Padmajan Sasikala, Sung Hwan Koo, Hee-Tae Jung, Yousung Jung, Sang Ouk Kim*, "Ambient Stabilization of Few Layer Phosphorene Via Noncovalent Functionalization With Surfactants - Systematic 2D NMR Characterization in Aqueous Dispersion" *Chemistry of Materials* **2019**, *31*, 2786-2794
- Selected as ACS Editor's Choice

21. Yoon Mi Choi†, **Soo-Yeon Cho**†, Doohyung Jang, Hyeong-Jun Koh, Junghoon Choi, Chong-Hyeok Kim, Hee-Tae Jung*, "Ultra-sensitive VOCs Detection of High-Resolution CuO/Cu_2O/Ag Nanopattern Sensor", *Advanced Functional Materials* **2019**, *29*, 1808319

20. Woo-Bin Jung†, **Soo-Yeon Cho**†, Bonglim Seo, Hae-Wook Yoo, Hwan-Jin Jeon, Jihan Kim, Hee-Tae Jung*, "Polyelemental Nanopattern via Plasma Ion Bombardment: From Fabrication to Superior H2 Sensing Application", *Advanced Materials* **2019**, *31*, 1805343

19. Ju Ye Kim†, **Soo-Yeon Cho**†, Hee-Tae Jung*, "Selective Functionalization of High-Resolution Cu_2O Nanopattern via Galvanic Replacement for Superior Chemical Sensing Performances", *Sensors* **2018**, *18*, 4438-4448

18. Kyeong Min Cho†, **Soo-Yeon Cho**†, Sanggyu Chong, Hyeong-Jun Koh, Dae Woo Kim, Jihan Kim, Hee-Tae Jung*, "Edge-Functionalized Graphene Nanoribbon Chemical Sensor: Comparison with Carbon Nanotube and Graphene", *ACS Applied Material Interfaces* **2018**, *10*, 42905-42914

17. **Soo-Yeon Cho**†, Ju Ye Kim†, Ohmin Kwon, Jihan Kim, Hee-Tae Jung*, "Molybdenum Carbide Chemical Sensor with Ultrahigh Signal-to-Noise Ratio and Ambient Stability", *Journal of Material Chemistry A* **2018**, *6*, 23408-23416

16. Jieung Baek†, **Soo-Yeon Cho**†, Hohyung Kang, Hyunah Ahn, Woo-Bin Jung, Younghak Cho, Eunjung Lee, Seung-Woo Cho, Hee-Tae Jung*, Sung Gap Im*, "Distinct Mechanosensing of Human Neural Stem Cells on Extremely-limited Anisotropic Cellular Contact", *ACS Applied Material Interfaces* **2018**, *10*, 33891-33900

15. **Soo-Yeon Cho**, Hyunah Ahn, Kangho Park, Junghoon Choi, Hohyung Kang, Hee-Tae Jung*, "Ultrasmall Grained Pd Nanopattern H_2 Sensor", *ACS Sensors* **2018**, *3*, 1876-1883

14. **Soo-Yeon Cho**†, Kyeong Min Cho†, Sanggyu Chong, Kangho Park, Sungtak Kim, Hohyung Kang, Seon Joon Kim, Geunjae Kwak, Jihan Kim*, Hee-Tae Jung*, "Rational Design of Aminopolymer for Selective Discrimination of Acidic Air Pollutants", *ACS Sensors* **2018**, *3*, 1329-1337

13. Ming Liang Jin†, Sangsik Park†, Jong-Seon Kim, Sung Hyun Kwon, Shuye Zhang, Min Seok Yoo, Sungwoo Jang, Hyeong-Jun Koh, **Soo-Yeon Cho**, So Young Kim, Chi Won Ahn, Kilwon Cho, Seung Geol Lee, Do Hwan Kim*, Hee-Tae Jung*, "An Ultrastable Ionic Chemiresistor Skin with an Intrinsically Stretchable Polymer Electrolyte" *Advanced Materials* **2018**, *30*, 1706851
- Featured in Front Cover

12. Seon Joon Kim†, Hyung-Jun Koh†, Chang E Ren, Ohmin Kwon, Kathleen Maleski, **Soo-Yeon Cho**, Babak Anasori, Choong-Ki Kim, Yang-Kyu Choi, Jihan Kim, Yury Gogotsi*, Hee-Tae Jung*, "Metallic $Ti_3C_2T_x$

MXene Gas Sensors With Ultrahigh Signal-to-Noise Ratio", *ACS Nano* **2018**, *12*, 986-993
- Selected as ACS Editor's Choice (one journal per day among all journals published by ACS)
- Featured on Front Cover
- Top 20 Most Read Articles of 2018, ACS Nano

11. Sungwoo Jang†, Seon Joon Kim†, Hyeong-Jun Koh, Doo Hyung Jang, **Soo-Yeon Cho**, Hee-Tae Jung*, "Highly Periodic Metal Dichalcogenide Nanostructures with Complex Shapes, High Resolution, and High Aspect Ratios", *Advanced Functional Materials* **2017**, *27*, 1703842

10. **Soo-Yeon Cho**, Hyeong-Jun Koh, Hae-Wook Yoo, Hee-Tae Jung*, "Tunable Chemical Sensing Performance of Black Phosphorus by Controlled Functionalization with Noble Metals", *Chemistry of Materials* **2017**, *29*, 7197-7205

9. **Soo-Yeon Cho**†, Hyeong-Jun Koh†, Hae-Wook Yoo, Jong-Seon Kim, Hee-Tae Jung*, "Tunable Volatile-Organic-Compound Sensor by Using Au Nanoparticle Incorporation on MoS_2", *ACS Sensors* **2017**, *2*, 183-189

8. **Soo-Yeon Cho**, Youhan Lee, Hyeong-Jun Koh, Hyunju Jung, Jong-Seon kim, Hae-Wook Yoo, Jihan Kim*, Hee-Tae Jung*, "Superior Chemical Sensing Performance of Black Phosphorus: Comparison with MoS_2 and Graphene" *Advanced Materials* **2016**, *28*, 7020-7028

7. **Soo-Yeon Cho**, Hae-Wook Yoo, Ju Ye Kim, Woo-Bin Jung, Ming Liang Jin, Jong-Seon Kim, Hwan-Jin Jeon, Hee-Tae Jung*, "High-Resolution p-type Metal Oxide Nanowire Array for Ultrasensitive Volatile Organic Compounds Sensor", *Nano Letters* **2016**, *16*, 4508-4515

6. Seon Joon Kim, Dae Woo Kim, Joonwon Lim, **Soo-Yeon Cho**, Sang Ouk Kim, Hee-Tae Jung*, "Large-Area Buckled MoS_2 Films on the Graphene Substrate", *ACS Applied Material Interfaces* **2016**, *8*, 13512-13519

5. **Soo-Yeon Cho**†, Hwan-Jin Jeon†, Hae-Wook Yoo, Kyeong Min Cho, Woo-Bin Jung, Jong-Seon Kim, Hee-Tae Jung*, "Highly Enhanced Fluorescence Signals of Quantum Dot-Polymer Composite Arrays Formed by Hybridization of Ultrathin Plasmonic Au Nanowalls", *Nano Letters* **2015**, *15*, 7273-7280

4. Kiok Kwon, Jong Min Ok, Yun Ho Kim, Jong-Seon Kim, Woo-Bin Jung, **Soo-Yeon Cho**, Hee-Tae Jung*, "Direct Observation of Highly Ordered Dendrimer Soft Building Blocks Over Large Area", *Nano Letters* **2015**, *15*, 7552-7557

3. **Soo-Yeon Cho**, Seon Joon Kim, Youhan Lee, Jong-Seon Kim, Woo-Bin Jung, Hae-Wook Yoo, Jihan Kim*, Hee-Tae Jung*, "Highly Enhanced Gas Adsorption Properties in Vertically Aligned MoS_2 Layers", *ACS Nano* **2015**, *9*, 9314-9321

2. Hae-Wook Yoo†, Soo-Yeon Cho†, Hwan-Jin Jeon, Hee-Tae Jung*, "Well-defined and High-Resolution Pt Nanowire Arrays for a High Performance Hydrogen Sensor by a Surface Scattering Phenomenon", *Analytical Chemistry* **2015**, *87*, 1480-1484

1. **Soo-Yeon Cho**†, Hwan-Jin Jeon†, Jong-Seon Kim, Jong Min Ok, Hee-Tae Jung*, "Hierarchical Ordering of Quantum Dots and Liquid with Tunable Super-Periodicity into High Aspect Ratio Moiré Superlattice Structure", *Advanced Functional Materials* **2014**, *24*, 9639-6947

RESEARCH PRESENTATIONS

Invited Talks

15. **Soo-Yeon Cho**, "Nanosensor Technology to Realize Biochemical Informatics" GCIM 2023, June 2023

14. **Soo-Yeon Cho**, "Sensor Technology to Realize Biochemical Informatics" Yonsei University, Jan. 2023

13. **Soo-Yeon Cho**, "Sensor Technology to Realize Biochemical Informatics" Korea Research Institute of Chemical Technology, Dec. 2022

12. **Soo-Yeon Cho**, "Nanosensor Technology to Support Therapeutics and Diagnostics" Cha Medical Center,

Oct. 2022

11. **Soo-Yeon Cho**, "Sensor Technology for Biochemical Informatics" SKKU Chemical Engineering, Sept. 2022

10. **Soo-Yeon Cho**, "Sensor Technology for Biochemical Informatics" Institute of Quantum Biophysics (IQB) Colloquium, Sept. 2022

9. **Soo-Yeon Cho**, "Sensor Technology for Next-Generation Biochemical Informatics" BK21+ Seminar, Department of Material Science and Chemical Engineering, Hanyang University (ERICA), May 2022

8. **Soo-Yeon Cho**, "Sensor Technology for Next-Generation Biochemical Informatics" BK21+ Seminar, Department of Systems Biotechnology, Chung-Ang University, April 2022

7. **Soo-Yeon Cho**, "Sensor Technology for Next-Generation Biochemical Informatics" BK21+ Seminar, Department of Agriculture, Forestry and Bioresources, Seoul National University, March 2022

6. **Soo-Yeon Cho**, "Sensor/Hardware Technology for Next-Generation Biochemical Informatics" Young Scientist Workshop, Department of Material Science Engineering, Seoul National University, Aug. 2021

5. **Soo-Yeon Cho**, "Sensor/Hardware Technology for Next-Generation Biochemical Informatics" CAMA Online Seminar, The Polymer Society of Korea, June 2021

4. **Soo-Yeon Cho**, "Leveraging Nanotechnology into a Real-World Biochemical Monitoring Platform" Department of Chemical and Biomolecular Engineering, Yonsei University, Korea, Feb. 2021

3. **Soo-Yeon Cho**, "Leveraging Nanotechnology into a Real-World Biochemical Monitoring Platform" Materials Architecturing Research Center, Korea Institute of Science and Technology (KIST), Korea, Dec. 2020

2. **Soo-Yeon Cho**, "High-Performance Sensor Development Using Nanotechnology" Department of Chemical Engineering, Massachusetts Institute of Technology (MIT), USA, Mar. 2019

1. **Soo-Yeon Cho**, "High-Resolution Nanopattern for Ultra-fast Hydrogen Detection" Young Scientist Session, 5th International E&E (Energy & Environment) Conference, Korea Institute of Science and Technology (KIST), Korea, Nov. 2018

International Conferences

16. (Oral) **Soo-Yeon Cho**, "Sensor Technology for Biochemical Informatics" Purdue University BME-SKKU Workshop 2022

15. (Oral) **Soo-Yeon Cho**, "Sensor Technology for Biochemical Informatics" University of Wollongong (UOW)-SKKU Frontier Materials Workshop 2022

14. (Oral) **Soo-Yeon Cho**, "Nanosensor Technology for Next-Generation Biochemical Informatics" NANO KOREA 2022

13. (Oral) **Soo-Yeon Cho**, "Sensor Technology for Next-Generation Biochemical Informatics" HUST-SKKU Workshop 2022

12. (Oral) **Soo-Yeon Cho**, Xun Gong, Michael S. Strano, "Nanosensor Chemical Cytometry to Support Cellular Therapeutics" Materials Research Society (MRS) Fall Meeting, USA, 2021

11. (Oral) **Soo-Yeon Cho**, Xun Gong, Michael S. Strano, "Nanosensor Chemical Cytometry for Single Cell Monitoring" American Institute of Chemical Engineers (AIChE) Annual Meeting, USA, 2021

10. (Oral) **Soo-Yeon Cho**, Michael S. Strano, "Nanosensor Chemical Cytometry to Support Cellular Therapeutics" MIT Postdoctoral Symposium, USA, 2021

9. (Oral) **Soo-Yeon Cho**, Xun Gong, Volodymyr Koman, Michael S. Strano, "Cellular Lensing and Near Infrared Fluorescent Nanosensor Arrays for Real-Time Chemical Efflux Cytometry" Materials Research

Society (MRS) Fall Meeting, USA, 2020

8. (Oral) **Soo-Yeon Cho**, Xun Gong, Michael S. Strano, "Cell as an Optical Lens: Application to New Class of Chemical Cytometry" American Institute of Chemical Engineers (AIChE) Annual Meeting, USA, 2020

7. (Poster) **Soo-Yeon Cho**, Daichi Kozawa, Xun Gong, Michael S. Strano, "Optical Fiber with Fluorescent Nanosensor for Protein Aggregation Detection" SENSE.nano Symposium (MIT), USA, 2019

6. (Oral) **Soo-Yeon Cho**, "Black Phosphorus: A New Emerging Class of Chemical Sensing Materials", The 30th International Symposium on Chemical Engineering (ISChE 2017), Korea, 2017

5. (Poster) **Soo-Yeon Cho**, "Superior Chemical Sensing Ability of Black Phosphorus", 2017 European Materials Research Society (eMRS), France, 2017

4. (Poster) **Soo-Yeon Cho**, Hae-Wook Yoo, Hee-Tae Jung, "Superior volatile organic compound (VOC) sensing performance of versatile p-type metal oxide nanowire array", The 13th International Nanotech Symposium, Korea, 2015

3. (Poster) **Soo-Yeon Cho,** Hwan-Jin Jeon, Hee-Tae Jung, "Hierarchical ordering of nanoparticles with tunable super-periodicity into high aspect ratio 2D superlattice", The 27th International Symposium on Chemical Engineering (ISChE 2014), Malaysia, 2014

2. (Poster) **Soo-Yeon Cho**, Hwan-Jin Jeon, Hee-Tae Jung, "Hierarchical ordering of quantum dots and liquid with tunable super-periodicity into high aspect ratio Moire superlattice structure", Korea-Japan Joint Polymer Symposium, Korea, 2014

1. (Poster) **Soo-Yeon Cho**, Hwan-Jin Jeon, Hee-Tae Jung, "Highly-ordered complex Moire superlattice structure with 10nm resolution: From fabrication to application to selective, periodic liquid trapping", The 12nd International Nanotech Symposium, Korea, 2014

Domestic Conferences

19. (Oral) **Soo-Yeon Cho**, "Nanosensor-Polymer Technology for Biochemical Informatics" The Korean Institute of Chemical Engineers: Fall Meeting, Oct 2022

18. (Oral-Invited) **Soo-Yeon Cho**, "Nanosensor technology for biochemical informatics" 2022 Fall Conference, The Polymer Society of Korea, Oct 2022

17. (Oral-Invited) **Soo-Yeon Cho**, "Nanosensor technology for biochemical informatics" 2022 Fall Conference, The Korean Society of Industrial and Engineering Chemistry (KSIEC), Oct 2022

16. (Oral-Invited) **Soo-Yeon Cho**, "Nanosensor Technology to Support Cellular Therapeutics" 2022 Fall Conference, The Korean Society of Biomaterials, Sept 2022

15. (Oral-Invited) **Soo-Yeon Cho**, "Multiarray Nanopattern Sensor Platform by Top-Down Lithography" 2022 Fall Conference, The Korean Sensors Society, August 2022

14. (Oral-Invited) **Soo-Yeon Cho**, "Top-Down Nanolithography for High-Resolution Chemical Sensor Technology" 2022 Spring Conference, The Korean Sensors Society, April 2022

13. (Oral) **Soo-Yeon Cho**, "Nanosensor Technology for Next-Generation Biochemical Informatics" The Korean Institute of Chemical Engineers: Spring Meeting, 2022

12. (Oral) **Soo-Yeon Cho**, Kyeong Min Cho, Jihan Kim, Hee-Tae Jung, "Rational Design of Aminopolymer for Air Pollutants Detection" The Korean Institute of Chemical Engineers: Fall Meeting, 2018

11. (Oral) **Soo-Yeon Cho**, Kyeong Min Cho, Hee-Tae Jung, "Adsorption Chemistry Control of Amine Polymer for Selective Detection of Acidic Air Pollutants" The Polymer Society of Korea: Spring Meeting, 2018

10. (Oral) **Soo-Yeon Cho**, Hyung-Jun Koh, Hee-Tae Jung, "Highly Sensitive/Selective Gas Sensing Performance of Black Phosphorus", The Korean Institute of Chemical Engineers: Spring Meeting, 2017

9. (Oral) **Soo-Yeon Cho**, Hee-Tae Jung, "Superior Chemical Sensing Performance of Black Phosphorus" Graduate Symposium, Department of Chemical and Biomolecular Engineering, KAIST, 2017

8. (Oral) **Soo-Yeon Cho**, Youhan Lee, Hyung-Jun Koh, Jihan Kim, Hee-Tae Jung, "Superior Gas Sensing Performance of Black Phosphorus", The Korea Materials Research Society: Fall Meeting, 2016

7. (Poster) **Soo-Yeon Cho**, Youhan Lee, Hyung-Jun Koh, Jihan Kim, Hee-Tae Jung, "Superior chemical sensing performance of black phosphorus" The Korean Institute of Chemical Engineers: Fall Meeting, 2016

6. (Oral) **Soo-Yeon Cho**, Hae-Wook Yoo, Hee-Tae Jung, "Superior volatile organic compound (VOC) sensing performance of high-resolution p-type metal oxide nanowire array" The Polymer Society of Korea: Fall Meeting, 2015

5. (Poster) **Soo-Yeon Cho**, Hee-Tae Jung, "Direct positioning of QD into polymeric nanostructures and enhancement of its quantum yield with plasmonic Au nanowall" Graduate Symposium, Department of Chemical and Biomolecular Engineering, KAIST, 2015

4. (Oral) **Soo-Yeon Cho**, Jong-Seon Kim, Hae-Wook Yoo, Hee-Tae Jung, "Versatile p-type metal oxide nanowire array for ultra-sensitive volatile organic compound sensor" The Polymer Society of Korea: Spring Meeting, 2015

3. (Poster) **Soo-Yeon Cho**, Hwan-Jin Jeon, Hee-Tae Jung, "Direct patterning of quantum dot nano-structure and enhancement of its quantum yield with plasmonic Au nanowall", The Polymer Society of Korea: Fall Meeting, 2014

2. (Poster) **Soo-Yeon Cho**, Hwan-Jin Jeon, Hee-Tae Jung, "Highly-ordered complex Moire superlattice structure with 10nm resolution: From fabrication to selective and periodic liquid trapping applications", The Korean Institute of Chemical Engineers: Spring Meeting, 2014

1. (Poster) **Soo-Yeon Cho**, Hwan-Jin Jeon, Hee-Tae Jung, "High transparent complex Moire superlattice structure with 10 nm resolution: From fabrication to selective liquid trapping application" The Polymer Society of Korea: Spring Meeting, 2014

LEADERSHIP AND PROFESSIONAL SERVICES

Organizing Committee – Korean Society of Industrial and Engineering Chemistry (KSIEC) 2023 Feb
The 10th Korea-Vietnam Green Chemistry Conference (GCC)

Associate Editor - Polymer Society of Korea（편집위원） 2023
Polymer Science Technology (ISSN 1225-0260(Print) ISSN 2586-1476(Online))

General Affair Member - The Korean BioChip Society（총무위원） 2023

Journal Reviewer 2013 - Present
Advanced Materials (Wiley), ACS Nano (American Chemical Society), Analytical Chemistry (American Chemical Society), ACS Sensors (American Chemical Society), ACS Applied Materials Interface (American Chemical Society), Carbon (Elsevier), Nanoscale (Royal Society of Chemistry), RSC Advances (Royal Society of Chemistry), Sensors & Diagnostics (Royal Society of Chemistry), Sensors (MDPI), Nanomaterials (MDPI), Applied Science (MDPI), Electronic Materials (MDPI), Biosensors (MDPI)