JUNSEO CHOI

Department of Engineering Technology
Texas State University
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EDUCATION

Ph.D. *08/2013*
- Department of Mechanical & Industrial Engineering, Louisiana State University, Baton Rouge, LA, USA
  - Dissertation: **Polymer-Based Fluidic Devices Integrated with Perforated Micro- and Nanopore Membrane for Study of Ionic and DNA Transport**

M.E. *02/2006*
- Department of Chemical Engineering & Advanced Materials Engineering, KyungHee University, Yongin, Gyeonggi, Republic of Korea
  - Thesis: **Synthesis and Characterization of Nanostructured TiO_2/γ-Al_2O_3 Granules**

B.E. *02/2004*
- Department of Chemical Engineering & Advanced Materials Engineering, KyungHee University, Yongin, Gyeonggi, Republic of Korea
  - Graduate Project: **Synthesis and Characterization of Freestanding Inorganic (TiO_2 and Al_2O_3) Membrane**

PROFESSIONAL RESEARCH EXPERIENCE & GRANTS

08/2024 - current
- **Assistant Professor**, Department of Engineering Technology, Texas State University, San Marcos, TX, USA
  - Nanofluidic Sensors for Real-Time Heavy Metal Identification, Texas State University Research Enhancement Program (REP), $8,000, PI: J. Choi, *01/27/25 - 05/31/26*
  - Texas State University Start-Up Grant for New Faculty, PI: J. Choi, *09/01/24 - 08/31/27*

09/2014 - 08/2024
- **Research Associate**, Department of Mechanical & Industrial Engineering, Louisiana State University, Baton Rouge, LA, USA
  - Developed Nanochannel Sensing Platforms for Real Time Bioanalysis.
- **Projects Involved**
  - Biotechnology Resource Center of Biomodular Multi Scale Systems CBM2 for Precision Molecular Diagnostics, National Institute of Biomedical Imaging and Bioengineering, PI: S. Soper, *09/16/15 - current*
  - Development of Novel Polymer-Based Platforms for DNA Sequencing, Roche Diagnostics, PI: S. Soper & F. Barany, *01/01/15 - 12/31/16*

08/2013 - 08/2014
- **Transient - Research Project & Special Events (Postdoctoral Fellow)**, Department of Mechanical & Industrial Engineering, Louisiana State University, Baton Rouge, LA, USA
  - Developed Nanochannel Sensing Platforms for Real Time Bioanalysis.
- **Projects Involved**
  - Time-of-Flight Based Nanochannel Sensing Platforms for Real Time Bioanalysis, National Science Foundation, PI: S. Park, *08/15/11 - 07/31/14*

06/2010 - 08/2010
- **Internship**, Samsung Mobile Display (SMD), Yongin, Gyeonggi, Republic of Korea
  - Developed Large Area Patterning Technology for OLED (Organic Light Emitting Diode) Panel.

08/2006 - 08/2013
- **Research Assistant**, Department of Mechanical & Industrial Engineering, Louisiana State University, Baton Rouge, LA, USA

- Developed Freestanding Polymer Membrane with Perforated Micro/Nanopore and 3D Micro/Nanofluidic System for Forming Lipid Bilayer at Micro/Nanopore Site and Studying Ion and Biomolecule (DNA) Transport through Nanopore.
- Developed 3D Nanopatterning in Microchannel (Based on Nanoimprinting Lithography) for Bioapplication such as Improving Reagents Mixing and Cell Adhesion on Channel Surface.
- Developed and Characterized Biomimetic Superhydrophobic Surfaces.

- **Projects Involved**
  - Time-of-Flight Based Nanochannel Sensing Platforms for Real Time Bioanalysis, National Science Foundation, PI: S. Park, *08/15/11 - 07/31/14*
  - Nanoscale Immobilization of Biotin Carboxylase, LSU Faculty Research Grant, PI: S. Park, *07/01/08 - 06/30/10*
  - Center for Biomodular Multi-Scale Systems: An Enabling Program for Discovery and Training in an Interdisciplinary Research, Louisiana Board of Regents-RII (LEQSF(2007-10)-CyberRII-02), PI: S. Soper, *10/01/07 - 09/31/10*
  - 3-D Integration of Nanostructures into Bioanalytic Devices, National Science Foundation, PI: S. Park, *03/01/07 - 02/28/12*
  - Developing a Toolbox for Nanoimprint Lithography, Louisiana Board of Regents-RCS, PI: S. Park, *07/01/06 - 06/30/09*

03/2004 - 02/2006

- **Research Assistant**, Department of Chemical Engineering & Advanced Materials Engineering, KyungHee University, Yongin, Gyeonggi, Republic of Korea
  - Synthesized and Characterized Nanoparticles (Al_3O_2, TiO_2 and ATO (Antimony Tin Oxide)) for Chemical and Electrical Application.
  - Synthesized and Characterized Inorganic (Al_3O_2, TiO_2 and ATO) Membrane for Chemical and Electrical Application.

- **Projects Involved**
  - Synthesis of Ceramic Thin Film by Electrospray, NanoNC Co., PI: J. Kim, *03/01/06 - 06/30/06*
  - Development of High Efficient Electrode for Direct Formic Acid Fuel Cells, Korea Institute of Science and Technology, PI: J. Kim, *04/01/05 - 12/31/05*
  - Thin Film Coating of Conductive Materials, NanoNC Co., PI: J. Kim, *03/01/05 - 08/31/05*
  - Development of High-Performance Electrolyte in SOFCs (Solid Oxide Fuel Cells), Korea Energy Management Corporation, PI: J. Kim, *11/01/04 - 10/30/05*
  - Study of Electrocatalyst Materials, Korea Institute of Science and Technology, PI: J. Kim, *03/01/04 - 12/31/04*
  - Synthesis of Nanostructured Titania Membranes with Improved Thermal Stability and Its Gas Permeation Properties, National Research Foundation of Korea, PI: J. Kim, *12/01/03 - 11/30/04*
  - Study of Conductive Coating Materials for Display, GRRC (Gyeonggi-do Regional Research Center), PI: J. Kim, *07/01/03 - 06/30/04*
  - Synthesis of Ceramic Nanoparticles for PDP (Plasma Display Panel), FORHUMANTECH. Co., PI: J. Kim, *07/01/03 - 06/30/04*

03/2004 - 02/2006

- **Technical Research Assistant**, Center for Research Facilities, KyungHee University, Yongin, Gyeonggi, Republic of Korea
  - Managed XRD (X-Ray Diffraction) and SEM (Scanning Electron Microscope).

PROFESSIONAL TEACHING EXPERIENCE & MENTORING

08/2026 - current

- **Advising Graduate Students**, Junhee Jeong (*08/2026 - current*)

08/2024 - current

- **Assistant Professor**, Department of Engineering Technology, Texas State University, San Marcos, TX, USA
  - TECH4381 & 4382 (Senior Design I & II)
  - TECH4392 (Micro and Nano Manufacturing)

- TECH5310 (Product Design and Development)
- TECH5391 (Advanced manufacturing Systems)

08/2013 - 08/2024
- **Mentoring Graduate Students**, Mohammad Beheshti (*08/2013 - 05/2018*), Zheng Jia (*08/2013 - 12/2018*), Emily Brown (*08/2015 - 12/2018*), Daewon Kim (*08/2018 - 12/2021*), Qinhan Liu (*01/2019 - 12/2021*), Ramin Riahipour (*08/2018 - 05/2023*), Hooman Abdolvand (*08/2022 - 08/2024*), Mohammad Derikvand (*08/2022 - 08/2024*), and Anish Maharjan (*01/2023 - 08/2024*)

08/2006 - 08/2013
- **Teaching Assistant**, Department of Mechanical & Industrial Engineering, Louisiana State University, Baton Rouge, LA, USA
  - Materials for Engineering for Mechanical Engineers, Materials of Engineering, Material Selection for Mechanical Engineers.

03/2004 - 02/2006
- **Teaching Assistant**, Department of Chemical Engineering & Advanced Materials Engineering, KyungHee University, Yongin, Gyeonggi, Republic of Korea
  - Fundamental Calculation in Chemical Engineering, Heat and Mass Transfer, Fluid Mechanics for Chemical Engineering.

03/2002 - 02/2006
- **Tutor**, taught mathematics to middle & high school students
  - College Algebra and Trigonometry, Analytic Geometry and Calculus.

HONORS & AWARDS

02/2024
- Best Postdoctoral Research Award for CBM2 2023

12/2016
- EMBS Micro and Nanotechnology in Medicine Conference, poster 2nd place ($150)

11/2012
- NSF Travel Award for ASME IMECE 2012 ($950)

08/2006 - 08/2013
- Research and Teaching Assistantship, Department of Mechanical & Industrial Engineering, Louisiana State University, Baton Rouge, LA, USA ($15,000/year)

08/2006 - 05/2010
- Supplement Award from Graduate School, Louisiana State University, Baton Rouge, LA, USA ($20,000)

03/2004 - 02/2006
- Research and Teaching Assistantship, Department of Chemical Engineering & Advanced Materials Engineering, KyungHee University, Yongin, Gyeonggi, Republic of Korea ($12,000)
- Research Assistantship, Center for Research Facilities, KyungHee University, Yongin, Gyeonggi, Republic of Korea ($10,000)
- Graduate Assistantship, KyungHee University, Yongin, Gyeonggi, Republic of Korea ($10,000)

01/2005 - 02/2005
- Scholarship to study abroad at the University of Bath in the United Kingdom, KyungHee University, Yongin, Gyeonggi, Republic of Korea ($3,000)

03/2002 - 02/2004
- Honor Student Fellowship, Department of Chemical Engineering & Advanced Materials Engineering, KyungHee University, Yongin, Gyeonggi, Republic of Korea ($6,000)

PUBLICATIONS (total 39 refereed papers, 1 Submitted. IF is based on JCR Year 2025)

From Texas State University (4 refereed papers, 1 Submitted)

- J. Jeong, J. Kim, J. Choi, and B. Kwon, Foundational Multi-Redox Silicomolybdic Acid-Derived Redox flow Battery System Design, ***J. Energy Storage***, xx (xxx 2026) xxxx (IF: 10.7) **Submitted**
- I. Chandrasoma, K. Akabirov, O. Fateru, K. Childers, S. Vaidyanathan, S. Barros, M. Chibuike, S. Shivanka, M. Verber, C. McKinney, U. Athapattu, P. Premarathne, F. Shiri, M. Witek, J. Choi, A. Hall, S. Park, and S. Soper, Plastic Nanofluidic Sensor with a Solid-Phase Bioreactor and Dual Nanopore Reader: Studying Biological Reactions at the Single-Molecule Level, ***ACS Appl. Mater. Interfaces***, xx (xxx 2026) xxxx (IF: 7.8) **http://doi.org/10.1021/acsami.6c08660**
- S. Shivanka, F. Shiri, M. Chibuike, C. McKinney, M. Verber, J. Choi, S. Park, A. Hall, and S. Soper, Insights on Using Plastic-Based Dual In-Plane Nanopore Sensors for Differentiation and Shape Determinations of Single Protein Molecules, ***Sci. Rep.***, 15 (APR 2025) 13742 (IF: 4.9) **https://doi.org/10.1038/s41598-025-96232-y**
- M. Chibuike*, C. Rathnayaka*, S. Shivanka, J. Choi, M. Verber, S. Park, and S. Soper, Millisecond Label-Free Single Peptide Detection and Identification Using Nanoscale Electrochromatography and Resistive Pulse

Sensing, ***Anal. Chem.***, 97(1) (JAN 2025) 427-435 (IF: 7.3) **https://doi.org/10.1021/acs.analchem.4c04542**
*These authors contributed equally to this manuscript.

- H. Nguyen, F. Shiri, M. Verber, C. McKinney, J. Choi, S. Park, J. Surtan, S. Prasannakumari, K. Ritola, and S. Soper, Single-Capsid Identification of Full and Empty Status of Recombinant Adeno-Associated Viruses via Resistive Pulse Sensing, ***Sens. Actuator Rep.***, 8 (DEC 2024) 100242 (IF: 6.9) **https://doi.org/10.1016/j.snr.2024.100242**

From Louisiana State University (31 refereed papers)

- C. Rathnayaka*, I. Chandrosoma*, J. Choi*, K. Childers*, M. Chibuike, K. Akabirov, F. Shiri, A. Hall, C. McKinney, M. Verber, S. Park, and S. Soper, Detection and Identification of Single Ribonucleotide Monophosphates Using a Dual In-Plane Nanopore Sensor Made from a Thermoplastic via Replication, ***Lab Chip***, 24(10) (MAY 2024) 2721-2735 (IF: 6.3) **https://doi.org/10.1039/D3LC01062G** *These authors contributed equally to this manuscript.
- J. Wu*, J. Choi*, F. Uba, S. Soper, and S. Park, Engineering Inlet Structures to Enhance DNA Capture into Nanochannels in as Polymer Nanofluidic Device Produced via Nanoimprint Lithography, ***Micro. Nano. Eng.***, 21 (DEC 2023) 100230 (IF: 4.6) **https://doi.org/10.1016/j.mne.2023.100230** *These authors contributed equally to this manuscript.
- F. Shiri*, J. Choi*, C. Vietz*, C. Rathnayaka, A. Manoharan, S. Shivanka, G. Li, C. Yu, M. Murphy, S. Soper, and S. Park, Nano-Injection Molding with Resin Mold Inserts for Prototyping of Nanofluidic Devices for Single Molecular Detection, ***Lab Chip***, 23(22) (NOV 2023) 4876-4887 (IF: 6.3) **https://doi.org/10.1039/D3LC00543G** *These authors contributed equally to this manuscript.
- S. Vaidyanathan*, H. Wijerathne*, S. Gamage*, F. Shiri, Z. Zhao, J. Choi, S. Park, M. Witek, C. McKinney, M. Verber, A. Hall, K. Childers, T. McNickle, S. Mog, E. Yeh, A. Godwin, and S. Soper, High Sensitivity Extended Nano-Coulter Counter for Detection of Viral Particles and Extracellular Vesicles, ***Anal. Chem.***, 95(26) (JUL 2023) 9892-9900 (IF: 7.3) **https://doi.org/10.1021/acs.analchem.3c00855** *These authors contributed equally to this manuscript.
- Z. Zhao, S. Vaidyanathan, P. Bhanja, S. Gamage, S. Saha, C. McKinney, J. Choi, S. Park, T. Pahattuge, H. Wijerathne, J. Jackson, M. Huppert, M. Witek, and S. Soper, In-plane Extended Nano-coulter Counter (XnCC) for the Label-Free Electrical Detection of Biological Particles, ***Electroanalysis***, 34(12) (DEC 2022) 1961-1975 (IF: 2.6) **https://doi.org/10.1002/elan.202200091**
- S. Gamage*, T. Pahattuge*, H. Wijerathne*, K. Childers*, S. Vaidyanathan*, U. Athapattu, L. Zhang, Z. Zhao, M. Hupert, R. Muller, J. Muller-Cohn, J. Dickerson, D. Dufek, B. Geisbrecht, H. Pathak, Z. Pessetto, G. Gan, J. Choi, S. Park, A. Godwin, M. Witek, and S. Soper, Microfluidic Affinity Selection of Active SARS-CoV-2 Virus Particles, ***Sci. Adv.***, 8(39) (SEP 2022) eabn9665 (IF: 13.9) **https://doi.org/10.1126/sciadv.abn9665** *These authors contributed equally to this manuscript.
- Z. Jia*, J. Choi*, S. Lee, S. Soper, and S. Park, Modifying Surface Charge Density of Thermoplastic Nanofluidic Biosensors by Multivalent Cations within the Slip Plane of the Electric Double Layer, ***Colloid Surf. A-Physicochem. Eng. Asp.***, 648 (SEP 2022) 129147 (IF: 5.4) **https://doi.org/10.1016/j.colsurfa.2022.129147**
*These authors contributed equally to this manuscript.
- S. Vaidyanatha, S. Gamage, K. Dathathreya, R. Kryk, A. Manoharan, Z. Zhao, L. Zhang, J. Choi, D. Park, S. Park, and S. Soper, Fluidic Operation of a Polymer-based Nanosensor Chip for Analyzing Single Molecules, ***Flow***, 2 (JUN 2022) E14 (IF: 2.1) **https://doi.org/10.1017/flo.2022.8**
- J. Choi*, Z. Jia*, R. Riahipour, C. McKinney, C. Amarasekara, K. Weerakoon-Ratnayake, S. Soper, and S. Park, Label Free Identification of Sigle Mononucleotides by Nanoscale Electrophoresis, ***Small***, 17(42) (OCT 2021) 2102567 (IF: 11.8) **https://doi.org/10.1002/smll.202102567** *These authors contributed equally to this manuscript.
- U. Athapattu*, C. Rathnayaka*, S. Vaidyanathan*, S. Gamage*, J. Choi, R. Riahipour, A. Manoharan, A. Hall, S. Park, and S. Soper, Tailoring Thermoplastic In-Plane Nanopore Size by Thermal Fusion Bonding for the Analysis of Single Molecules, ***ACS Sens.***, 6(8) (AUG 2021) 3133-3143 (IF: 10.9) **https://doi.org/10.1021/acssensors.1c01359** *These authors contributed equally to this manuscript.
- S. Vaidyanathan*, K. Weerakoon-Ratnayake*, F. Uba. B. Hu, D. Kaufman, J. Choi, S. Park, and S. Soper, Thermoplastic Nanofluidic Devices for Identifying Abasic Sites in Single DNA Molecules, ***Lab Chip***, 21(8) (APR 2021) 1579-1589 (IF: 6.3) **https://doi.org/10.1039/D0LC01038c** *These authors contributed equally to this manuscript.

- X. Zhao, D. Park, J. Choi, S. Park, S. Soper, and M. Murphy, Flexible-templated Imprinting for Fluorine-free, Omniphobic Plastics with Re-entrant Structures, ***J. Colloid Interface Sci.***, 585 (MAR 2021) 668-675 (IF: 9.6) **https://doi.org/10.1016/j.jcis.2020.10.046**
- C. Amarasekara*, C. Rathnayaka*, U. Athapattu, L. Zhang, J. Choi, S. Park, A. Nagel, and S. Soper, Electrokinetic Identification of Ribonucleotide Monophosphates (rNMPs) Using Thermoplastic Nanochannels, ***J. Chromatogr. A***, 1638 (FEB 2021) 461892 (IF: 4.0) **https://doi.org/10.1016/j.chroma.2021.461892** *These authors contributed equally to this manuscript.
- C. Amarasekara, U. Athapattu, C. Rathnayaka, J. Choi, S. Park, and S. Soper, Open-tubular Nanoelectrochromatography (OT-NEC): Gel-free Separation of Single Stranded DNAs (ssDNAs) in Thermoplastic Nanochannels, ***Electrophoresis***, 41(18-19) (OCT 2020) 1627-1640 (IF: 2.6) **https://doi.org/10.1002/elps.202000109**
- X. Zhao, D. Park, J. Choi, S. Park, S. Soper, and M. Murphy, Robust, Transparent, Superhydrophobic Coatings Using Novel Hydrophobic/Hydrophilic Dual-sized Silica Particles, ***J. Colloid Interface Sci.***, 574 (AUG 2020) 347-354 (IF: 9.6) **https://doi.org/10.1016/j.jcis.2020.04.065**
- B. Zhang*, M. Dodaran*, S. Shao, J. Choi, S. Park, and W. Meng, Understanding of Plasticity Size-Effect Governed Mechanical Response and Incomplete Die Filling in a Microscale Double-Punch Molding Configuration, **Int. J. Mech. Sci.**, 172 (APR 2020) 105406 (IF: 11.4) **https://doi.org/10.1016/j.ijmecsci.2019.105406** *These authors contributed equally to this manuscript.
- J. Choi, C. Lee, and S. Park, Scalable Fabrication of Sub-10 nm Polymer Nanopores for DNA Analysis, ***Microsyst. Nanoeng.***, 5 (APR 2019) 12 (IF: 11.1) **https://doi.org/10.1038/s41378-019-0050-9**
- A. Prasad, J. Choi, Z. Jia, S. Park, and M. Gartia, Nanohole Array Plasmonic Biosensors: Emerging Point-of-Care Applications, ***Biosens. Bioelectron.***, 130 (APR 2019) 185-203 (IF: 11.8) **https://doi.org/10.1016/j.bios.2019.01.037**
- Z. Jia*, J. Choi*, and S. Park, Surface Charge Density-Dependent of DNA Capture through Polymer Planar Nanopores, ***ACS Appl. Mater. Interfaces***, 10(47) (NOV 2018) 40927-40937 (IF: 7.8) **https://doi.org/10.1021/acsami.8b14423** *These authors contributed equally to this manuscript.
- J. Choi, Z. Jia, and S. Park, Fabrication of Polymeric Dual-Scale Nanoimprint Molds Using a Polymer Stencil Membrane, ***Microelectron. Eng.***, 199 (NOV 2018) 101-105 (IF: 3.3) **https://doi.org/10.1016/j.mee.2018.07.009**
- Z. Jia, J. Choi, and S. Park, Selection of UV-Resins for Nanostructured Molds for Thermal NIL, ***Nanotechnology***, 29(36) (SEP 2018) 365302 (IF: 2.9) **https://doi.org/10.1088/1361-6528/aacd33**
- M. Beheshti, J. Choi, X. Geng, E. Podlaha-Murphy, and S. Park, Patterned Electromagnetic Alignment of Magnetic Nanowires, ***Microelectron. Eng.***, 193 (JUN 2018) 71-78 (IF: 3.3) **https://doi.org/10.1016/j.mee.2018.02.021**
- B. Farshchian, A. Amirsadeghi, J. Choi, D. Park, N. Kim, and S. Park, 3D Nanomolding and Fluid Mixing in Micromixers with Micro-Patterned Microchannel Walls, ***Nano Converg.***, 4 (MAR 2017) 4 (IF: 13.8) **https://doi.org/10.1186/s40580-017-0098-x**
- A. Amirsadeghi, L. Brumfield, J. Choi, E. Brown. J. Lee, and S. Park, The Role of Hydrophobic Silane Coating on Si Stamps in Nanoimprint Lithography, ***J. Appl. Phys.***, 121(4) (JAN 2017), 044909 (IF: 2.7) **https://doi.org/10.1063/1.4974533**
- J. Ok, J. Choi, E. Brown, and S. Park, Effect of Different Fluids on Rectified Motion of Leidenfrost Droplets on Micro/Sub-Micron Ratchets, ***Microelectron. Eng.***, 158 (JUN 2016) 130-134 (IF: 3.3) **https://doi.org/10.1016/j.mee.2016.04.018**
- J. Choi, B. Farshchian, J. Kim, and S. Park, Fabrication of Perforated Micro/Nanopore Membranes via Combination of Nanoimprint Lithography and Pressed Self-Perfection Process for Size Reduction, ***J. Nanosci. Nanotechnol.***, 13(6) (JUN 2013) 4129-4133 (IF: 1.134, JCR Year 2019) **https://doi.org/10.1166/jnn.2013.7016**
- S. Hurst, B. Farshchian, L. Brumfield, J. Ok, J. Choi, J. Kim, and S. Park, Low Cost Fabrication of a Superhydrophobic V-Grooved Polymer Surface, ***J. Nanosci. Nanotechnol.***, 13(3) (MAR 2013) 1884-1887 (IF: 1.134, JCR Year 2019) **https://doi.org/10.1166/jnn.2013.6973**
- B. Farshchian*, S. Park*, J. Choi, A. Amirsadeghi, J. Lee, and S. Park, 3D Nanomolding for Lab-on-a-Chip Applications, ***Lab Chip***, 12(22) (OCT 2012) 4764-4771 (IF: 6.3) **https://doi.org/10.1039/C2LC40572E** *These authors contributed equally to this manuscript.

- S. Hurst*, B. Farshchian*, J. Choi, J. Kim, and S. Park, A Universally Applicable Method for Fabricating Superhydrophobic Polymer Surfaces, ***Colloid Surf. A-Physicochem. Eng. Asp.***, 407 (AUG 2012) 85-90 (IF: 5.4) **https://doi.org/10.1016/j.colsurfa.2012.05.012** *These authors contributed equally to this manuscript.
- J. Choi, A. Roychowdhury, N. Kim, D. Nikitopoulos, W. Lee, H. Han and S. Park, A Microfluidic Platform with a Free-Standing, Perforated Polymer Membrane, ***J. Micromech. Microeng.***, 20(8) (AUG 2010) 085011 (8pp) (IF: 2.5) **https://doi.org/10.1088/0960-1317/20/8/085011**
- Z. Song, J. Choi, B. You, J. Lee and S. Park, Simulation Study on Stress and Deformation of Polymeric Patterns During the Demolding Process in Thermal Imprint Lithography, ***J. Vac. Sci. Technol. B***, 26(2) (MAR 2008) 598-605 (IF: 1.6) **https://doi.org/10.1116/1.2890693**

From KyungHee University (4 refereed papers and 3 domestic papers)

- J. Choi, J. Kim, K. Yoo and T. Lee, Synthesis of Mesoporous TiO_2/γ-Al_2O_3 Composite Granules with Different Sol Composition and Calcination Temperature, ***Powder Technol.***, 181(1) (JAN 2008) 83-88 (IF: 5.5) **https://doi.org/10.1016/j.powtec.2007.06.022**
- J. Choi, J. Ban, S. Choung, J. Kim, H. Abimanyu and K. Yoo, Sol-Gel Synthesis, Characterization and Photocatalytic Activity of Mesoporous TiO_2/γ-Al_2O_3 Granules, ***J. Sol-Gel Sci. Technol.***, 44(1) (OCT 2007) 21-28 (IF: 4.2) **https://doi.org/10.1007/s10971-007-1592-0**
- J. Choi, B. Kim and J. Kim, Structural Evolution of Sol-Gel Derived Nanostructured Alumina Granules with Calcination Temperature, ***J. Chem. Eng. Jpn.***, 39(9) (SEP 2006) 1000-1003 (IF: 1.9) **https://doi.org/10.1252/jcej.39.1000**
- S. Kim, J. Choi, J. Kim, H. Lee and H. Song, Plasma Catalytic Reaction of Methane over Nanostructured Ru/γ-Al_2O_3 Catalysts in Dielectric-Barrier Discharge, ***J. Ind. Eng. Chem.***, 11(4) (JUL 2005) 533-539 (IF: 7.1) **DOI: N/A (https://www.cheric.org/research/tech/periodicals/view.php?seq=502067)**
- J. Choi, J. Kim and T. Lee, Synthesis of Bimodally Porous γ-Alumina Granules by Sol-Gel/Oil-Drop Method, ***J. Korean Ind. Eng. Chem.***, 18(2) (APR 2007) 111-115 (IF: N/A) **DOI: N/A (https://www.koreascience.or.kr/article/JAKO200710103458274.page)** (domestic, written in Korean)
- J. Choi and J. Kim, Synthesis of Nanostructured Alumina Granules by Sol-Gel/Oil-Drop Method, ***The Journal Industrial Liaison Research Institute***, 11 (2005) 156-160 (IF: N/A) (domestic, written in Korean)
- J. Choi and J. Kim, Synthesis of Antimony-doped Tin Oxide (ATO) Nanopaticles by Hydrothermal Process, ***The Journal Industrial Liaison Research Institute***, 10 (2004) 174-179 (IF: N/A) (domestic, written in Korean)

PRESENTATION & PROCEEDINGS (16 conference papers in proceedings)

From Texas State University

- H. Abdolvand, H. Davis, R. Riahipour, J. Choi, and S. Park, Diffusion of Ions in Polymer Nanofluidic Devices by Transient Current Measurements, NANO KOREA 2026, Jul 8-10, Goyang, Gyeonggi (2026) (Oral presentation)
- J. Choi, D. Lek, I. Song, and B. You, COMSOL Simulation of DNA Capture Dynamics at Micro/Nanochannel Interfaces, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2025, Nov 16-20, Memphis, TN (2025) (Oral presentation)
- J. Choi, D. Lek, I. Song, and B. You, Nanopore-Based Sensing Platform for Real-Time Detection of Heavy Metals: A Simulation Approach, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2025, Nov 16-20, Memphis, TN (2025) (Oral presentation)
- H. Abdolvand, J. Choi, Z. Jia, S. Soper, A. Hall, and S. Park, Fabrication of Plastic In-Plane Nanopore Sensors with Different Pore Shapes and the Resistive Pulse Sensing of Mononucleotides, NANO KOREA 2025, Jul 2-4, Goyang, Gyeonggi (2025) (Oral presentation)

From Louisiana State University (16 conference papers in proceedings)

- J. Choi and S. Park, Dynamic DNA Capture at Micro/Nanochannel Interfaces under Flow Conditions, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2024, Nov 17-21, Portland, OR (2024) (Oral presentation)
- H. Abdolvand, J. Choi and S. Park, A Compression-Based Approach to Control Nanopore Size in Dual In-Plane Nanopore Sensors, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2024, Nov 17-21, Portland, OR (2024) (Oral presentation)

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- H. Abdolvand, J. Choi and S. Park, The Effect of the Nanopore Shape on Resistive Pulse Sensing of Mononucleotides in Plastic Dual In-Plane Nanopore Sensors, 67th EIPBN, May 28-31, La Jolla, CA (2024) (Oral presentation)
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- H. Abdolvand, R. Riahipour, J. Choi, S. Soper, and S. Park, The Effect of the Shape of In-Plane Nanopores on Resistive Pulse Sensing Signals of Nucleotides in Polymer Dual In-Plane Nanopores Sensors, ASME International Mechanical Engineering Congress & Exposition (IMECE) (2023), Oct 29 - Nov 2, New Orleans, LA (2023) (Oral presentation)
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- J. Choi and S. Park, Nanoscale Control over the Size of Polymer Nanochannels via Cross-Linking Agent Concentration of UV-Resin for Nanoimprint Lithography, 65th EIPBN, May 31 - Jun 3, New Orleans, LA (2022) (Oral presentation)
- D. Kim, J. Choi, A. Saizan, S. Lee, B. Zhang, W. Meng, and S. Park, Surface Charge Density of Nanofluidic Devices with TMPTA UV Resins of Different Cross-Linking Agent Concentration Fabricated by UV Nanoimprint Lithography, 64th EIPBN, Jun 1-4, Virtual Conference (2021) (Oral presentation)
- B. Zhang, M. Dodaran, S. Shao, J. Choi, S. Park, and W. Meng, Shape Fidelity and Mechanical Response in Micro Pattern Replication by Molding, 149th TMS Annual Meeting and Exhibition, Feb 23-27, San Diego, CA (2020) (Oral presentation)
- J. Choi, Z. Jia, S. Soper, and S. Park, Manipulating DNA Translocation through Polymer-Based Entropic Trap Arrays with Different Surface Charge Densities, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2019, Nov 11-14, Salt Lake City, UT (2019) (Oral presentation)
- J. Choi, Z. Jia, and S. Park, Surface Charge Density Dependent DNA Capture through Polymer Planar Nanopores Fabricated by NIL, 18th International Conference on Nanoimprint and Nanoprint Technologies (NNT), Oct 14-16, Boston, MA (2019) (Oral presentation)
- J. Choi, Z. Jia, and S. Park, Selection of UV-Resin Molds Having Nanostructures for Thermal-NIL, 18th International Conference on Nanoimprint and Nanoprint Technologies (NNT), Oct 14-16, Boston, MA (2019) (Poster presentation)
- C. Amarasekara, J. Choi, Z. Jia, S. A. Soper and S. Park, Polymer Nanosensors using Electrophoretic Identification of Nucleotides for Single-Molecule Sequencing, 22nd International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS), Nov 11-15, Kaohsiung, Taiwan (2018) (**Proceedings paper** / Poster presentation)
- M. Beheshti, X. Geng, J. Choi, E. Podlaha-Murphy, and S. Park, Electrical Characteristics of Individual FeNiCo-Au Core-Shell Nanowires Integrated into Microelectrodes on Plastic Substrate, NSTI Nanotech Conference 18, May 13-16, Anaheim, CA (2018) (**Proceedings paper** / Oral presentation)
- J. Choi and S. Park, Pore Size Dependence of DNA Translocation through Polymer Nanopores Fabricated by Nanoimprint Lithography, 21st International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS), Oct 22-26, Savannah, Georgia (2017) (**Proceedings paper** / Poster presentation)
- J. Choi and S. Park, Fabrication of Dual-Scale Nanoimprint Molds Using Polymer Stencil Membranes, MNE, Sep 18-22, Braga, Portugal (2017) (Oral presentation)
- Z. Jia, J. Choi and S. Park, Fabrication of UV resin stamps from Sharp Nanostructures and Their Performance for Thermal NIL, MNE, Sep 18-22, Braga, Portugal (2017) (Oral presentation)
- M. Beheshti, J. Choi, Z. Jia, and S. Park, Polymer-Based Stencil Masks for Electrode Fabrications on Highly Curved Flexible Electronics, MNE, Sep 18-22, Braga, Portugal (2017) (Poster presentation)

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- J. Choi and S. Park, High Throughput Manufacturing of Sub-10 nm Nanopore Sensors by Nanoimprint Lithography, EMBS Micro and Nanotechnology in Medicine Conference, Dec 12-16, Waikoloa, HI, (2016) (Poster presentation)
- J. Choi and S. Park, Fabrication of Dual-Scale Nanoimprint Molds Using Polymer Stencil Membranes, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2016, Nov 11-17, Phoenix, AZ, (2016) (Oral presentation)
- M. Beheshti, S. Park, J. Choi, X. Geng, and E. Podlaha-Murphy, Micro Level Placement of Nanowires via Real Time Observation under Optical Microscope on a Desired Nanochannel for Nanosensors Application, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2016, Nov 11-17, Phoenix, AZ, (2016) (**Proceedings paper** / Oral presentation)
- D. Park, T. Park, J. Choi, I. Song, N. Kim, B. You, S. Soper, D. Nikitopoulos, S. Park, and M. Murphy, Design and Fabrication of a High Throughput Processing Module for Plasma Isolation, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2016, Nov 11-17, Phoenix, AZ, (2016) (Oral presentation)
- K. Weerakoon-Ratnayake, V. Singh, F. Uba, R. Schotzinger, J. Choi, Z. Jia, P. Chastain, D. Kaufman, S. Park, and S. Soper, Integrated Thermoplastic Nanofluidic Device for Detection of Chemotherapeutically Induced Damage in Genomic DNA, 20th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS), Oct 09-13, Dublin, Ireland (2016) (**Proceedings paper** / Poster presentation)
- Z. Jia, J. Choi, and S. Park, Electrodeposition of Long Silver Nanowires in Highly Ordered Polymer-Based Template, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2015, Nov 13-19, Houston, TX (2015) (**Proceedings paper** / Oral presentation)
- M. Beheshti, S. Park, J. Choi, X. Geng, and E. Podlaha-Murphy, Reduction of Nanowire Agglomeration via an Intermediated Membrane in Nanowires Preparation for Nanosensors Application, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2015, Nov 13-19, Houston, TX (2015) (**Proceedings paper** / Oral presentation)
- J. Choi and S. Park, Fabrication of Nanopores in Polymer Membranes Using Nanoimprint Lithography for DNA Analysis, 19th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS), Oct 25-29, Gyeongju, Korea (2015) (**Proceedings paper** / Poster presentation)
- J. Choi and S. Park, Polymer-Based Fluidic Devices Integrated with Perforated Conical Nanopores in Freestanding Polymer Membranes, 1st International Conference Advanced Engineering and Technology (ICAET) 14, Dec 20-21, Incheon, Korea (2014) (**Proceedings paper** / Poster presentation)
- T. Park, I. Song, S. Cobb, J. Choi, D. Park, B. You, S. Park, and M. Murphy, Sealing of Polymer Micro Devices Using a Boiling Point Control System, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2012, Nov 9-15, Houston, TX (2012) (Oral & Poster presentation)
- J. Wu, F. Uba, G. Shao, J. Choi, S. Soper, and S. Park, Uncoil DNA Molecules with Nanoposts, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2012, Nov 9-15, Houston, TX (2012) (Oral & Poster presentation)
- B. Farshchian, J. Choi, and S. Park, 3D Micromixer, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2012, Nov 9-15, Houston, TX (2012) (**Proceedings paper** / Oral & Poster presentation)
- J. Choi, B. Farshchian, and S. Park, Fabrication of Perforated Conical Nanopores in Freestanding Polymer Membranes Using Nanoimprint Lithography and Pressed Self-Perfection Method, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2012, Nov 9-15, Houston, TX (2012) (**Proceedings paper** / Oral & Poster presentation)
- J. Wu, G. Shao, J. Choi, F. Uba, S. Soper, and S. Park, Uncoil Long DNA Molecules by Nanoposts Array, NSTI Nanotech Conference 12, Jun 18-21, Santa Clara, CA (2012) (**Proceedings paper** / Poster presentation)
- S. Hurst, B. Farshchian, L. Brumfield, J. Ok, J. Choi, J. Kim, S. Park, Low Cost Fabrication of a Superhydrophobic V-Grooved Polymer Surface, International Conference on Nano Science and Nano Technology (ICNST) 11, Nov 10-11, Sunchon, Korea (2011) (Poster presentation)
- J. Choi, B. Farshchian, J. Kim, and S. Park, Fabrication of Perforated Micro/Nanopore Membranes via a Combination of Nanoimprint Lithography and Pressed Self-Perfection Process for Size Reduction,

International Conference on Nano Science and Nano Technology (ICNST) 11, Nov 10-11, Sunchon, Korea (2011) (Poster presentation)
- J. Choi and S. Park, Perforated Micro- and Nanopores in Free-Standing Polymer Membranes Fabricated by Nanoimprint Lithography and Pressed Self-Perfection Method, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2009, Nov 13-19, Lake Buena Vista, FL (2009) (**Proceedings paper** / Oral & Poster presentation)
- J. Choi, N. Kim, D. Nikitopoulos, M. Murphy and S. Park, Microfluidic Platforms with Micro- and Nanopore Membranes for In-Situ Formation of Lipid Bilayer, NSTI Nanotech Conference 09, May 3-7, Houston, TX (2009) (**Proceedings paper** / Oral presentation)
- J. Choi, A. Roychowdhury and S. Park, Low Cost Fabrication of Micro- and Nanopores in Free-Standing Polymer Membranes for Study of Lipid Adsorption, NSTI Nanotech Conference 08, Jun 1-5, Boston, MA (2008) (**Proceedings paper** / Poster presentation)
- J. Choi, T. Lee and J. Kim, Sol-Gel Synthesis, Characterization and Photocatalytic Activity of Mesoporous TiO_2/γ-Al_2O_3 Granules, ACS, Apr 6-10, New Orleans, LA (2008) (Poster presentation)
- J. Choi, A. Roychowdhury and S. Park, Selective Immobilization of Lipid Bilayers at Nanopores in Free-Standing Polymer Membranes Fabricated via Nanoimprint Lithography, ACS, Apr 6-10, New Orleans, LA (2008) (Poster presentation)
- A. Roychowdhury, J. Choi, A. Yi, F. Xu, and S. Park, Fabrication of Perforated Membranes in Polymers Using Imprint Lithography, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2007, Nov 11-15, Seattle, WA (2007) (**Proceedings paper** / Poster presentation)

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- J. Kim and J. Choi, Synthesis and Characterization of Nanostructured TiO_2/γ-Al_2O_3 Granules and Its Photocatalyst Properties, KIChE Spring Meeting, Apr 20-21, Daegu, Korea (2006) (Poster presentation)
- J. Choi and J. Kim, Synthesis and Characterization of Nanostructured TiO_2/γ-Al_2O_3 Granules, KIChE Fall Meeting, Oct 21-22, Incheon, Korea (2005) (Poster presentation)
- J. Choi and J. Kim, Synthesis of Nanostructured TiO_2/γ-Al_2O_3 Granules by Sol-Gel/Oil-Drop Method, KAPAR aerosol, Jul 7-9, Yongpyong, Korea (2005) (Poster presentation)
- J. Choi and J. Kim, Synthesis of Nanostructured Al_2O_3 Granules by Sol-Gel/Oil-Drop Method, KIChE Spring Meeting, Apr 22-23, Yeosu, Korea (2005) (Poster presentation)
- J. Choi, D. Ham, H. Seo and J. Kim, Synthesis of Nanostructured TiO_2/γ-Al_2O_3 Granules by Sol-Gel/Oil-Drop Method, KIChE Fall Meeting, Oct 29-30, Asan, Korea (2004) (Poster presentation)
- J. Choi and J. Kim, Nanostructured Alumina Granules by Sol-Gel/Oil-Drop Method, Korea-Japan Symposium on Materials & Interfaces, Oct 21-24, Beppu, Japan (2004) (Poster presentation)
- J. Choi and J. Kim, Synthesis of Nanostructured Alumina Granules by Sol-Gel/Oil-Drop Method, KIChE Spring Meeting, Apr 23-24, Gongju, Korea (2004) (Poster presentation)

PROFESSIONAL ACTIVITES

- Co-Chair, Track 14, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2026, Nov 8-12, Vancouver, British Columbia, Canada (2026)
- Chair, Track 14, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2025, Nov 16-20, Memphis, TN, United State (2025)
- Co-Chair, Track 13, ASME International Mechanical Engineering Congress & Exposition (IMECE) 2024, Nov 17-21, Portland, OR, United State (2024)
- Conference Proceedings Paper Reviewer for the ASME International Mechanical Engineering Congress & Exposition (IMECE)
- Peer Journal Reviewer for **Biosensors and Bioelectronics**, **Micromachines**, **Microelectronics Journal**, **Surfaces and Interfaces, Sensing and Bio-Sensing Research, Sensors and Actuators Reports, npj Advanced Manufacturing,** and **Scientific Reports**
- ACS (American Chemical Society) Member (2008-current)
- ASME (American Society of Mechanical Engineers) Member (2009-current)

OTHER SOCIETAL ACTIVITES

- Vice President of Korean Student Organization in Louisiana State University (2007-2008)