THE 2ND INTERNATIONAL CONFERENCE ON NATURE INSPIRED SURFACE ENGINEERING (NISE 2022)

https://ameriscience.org/nise-2022/

August 17-19, 2022
Seoul National University
Seoul, Korea

Hosted by

AMERICAN INSTITUTE OF SCIENCES

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Inter-university Semiconductor Research Center

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Eduction and Research Program for Future ICT Pioneers

SNU SOFT FOUNDRY INSTITUTE
Seoul National University

CONFERENCE CHAIR

Dr. Chang-Hwan Choi is a professor in the Department of Mechanical Engineering at the Stevens Institute of Technology. He acquired his BS (1995) and MS (1997) in Mechanical & Aerospace Engineering from Seoul National University in Korea. He also earned his MS in Fluids, Thermal, and Chemical Processes from Brown University in 2002. Dr. Choi received his PhD in Mechanical Engineering from the University of California at Los Angeles (UCLA) in 2006, specializing in MEMS/Nanotechnology and minoring in Fluid Mechanics and Biomedical Engineering.

CONFERENCE CO-CHAIR

Dr. Ho-Young Kim is a professor in the Department of Mechanical Engineering at Seoul National University. He received his B.S. (1994) from Seoul National University, and M.S. (1996) and Ph.D. (1999) from MIT all in mechanical engineering. He is Fellow of American Physical Society since 2017. Areas of his research interest include mechanics of soft matter, microscale interfacial flows, and biological fluid dynamics.

LOCAL ORGANIZING COMMITTEE

Prof. Ho-Young Kim
Chair of the local organizing committee
Department of Mechanical Engineering, Seoul National University, Korea

Prof. Yun Seog Lee
Department of Mechanical Engineering, Seoul National University, Korea

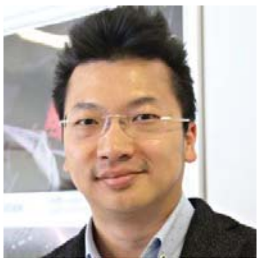
Prof. Sung Jae Kim
Department of Electrical and Computer Engineering, Seoul National University, Korea

Prof. Hoon Eui Jeong
Department of Mechanical Engineering, Ulsan National Institute of Science and Technology (UNIST), Korea

TECHNICAL COMMITTEE CHAIR

Dr. Zuankai Wang is currently a Professor in the Department of Mechanical Engineering and Associate Dean (Internationalization & Industry Engagement) of College of Engineering at the City University of Hong Kong, a founding member of Young Academy of Science of Hong Kong, a Fellow of International Society of Bionic Engineering (ISBE). His work on the invention of the most water repellent surface has been included in the Guinness Book of World Records.

TECHNICAL COMMITTEE CO-CHAIR



Dr. Tak-Sing Wong is currently Professor of Mechanical Engineering and the inaugural holder of Wormley Family Early Career Professorship in the Department of Mechanical Engineering at The Pennsylvania State University. For his research contributions in nature-inspired materials design, Dr. Wong was named one of the world's top 35 innovators under the age of 35 (Innovators Under 35) by the MIT Technology Review, as well as honored by the White House for the Presidential Early Career Award for Scientists and Engineers (PECASE).

TECHNICAL COMMITTEE

Dr. Catarina Esteves
Department of Chemical Engineering and Chemistry, Eindhoven University of Technology, Netherlands

Dr. Ximin He
Department of Materials Science and Engineering, University of California, Los Angeles, USA

Dr. Anne Kietzig
Department of Chemical Engineering, McGill University, Canada

Dr. Alla Synytska
Department Polymer Interfaces, Leibniz-Institut für Polymerforschung Dresden e.V., Germany

Dr. Ilker Bayer
IIT Central Research Labs Genova, Istituto Italiano di Tecnologia, Italy

Dr. Edward Bormashenko
Department of Chemical Engineering & Biotechnology, Ariel University, Israel

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Department of Materials Science and Engineering, Michigan Technological University, USA

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Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, India

Dr. Karlis Gross
Faculty of Materials Science and Applied Chemistry, Riga Technical University, Latvia

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College of Chemistry and Chemical Engineering, Xiamen University, China

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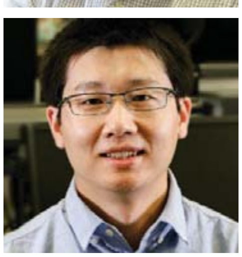
Department of Aerospace Engineering, Iowa State University, USA

Dr. Hoon Eui Jeong
Department of Mechanical Engineering, Ulsan National Institute of Science and Technology (UNIST), Korea

Dr. Ioannis Karapanagiotis
University Ecclesiastical Academy of Thessaloniki, Greece

Dr. Seok Kim
Department of Mechanical Engineering, POSTECH, Korea



Dr. Ling Li
Department of Mechanical Engineering, Virginia Tech, USA

Dr. Glen McHale
School of Engineering, University of Edinburgh, UK

Dr. Constantine Megaridis
Department of Mechanical and Industrial Engineering, University of Illinois at Chicago, USA

Dr. Sushanta Mitra
Waterloo Institute for Nanotechnology, University of Waterloo, Canada

Dr. Changhyun Pang
School of Chemical Engineering, Sungkyunkwan University, Korea

Dr. Kenneth Park
Department of Mechanical Engineering, Northwestern University, USA

Dr. Luyi Sun
Department of Biomedical Engineering, University of Connecticut, USA

Dr. David Waugh
Mechanical, Aerospace and Automotive Engineering, Coventry University, UK

BENEFACTOR

Nano Letters is sponsoring the conference bags.

SPONSORING JOURNALS

Four "Best Presentation Awards" for young investigators (Ph.D. students) in the amount of **200 USD** are sponsored by the journals.

KEYNOTE SPEAKERS

Dr. Teri Odom

Department of Chemistry, Northwestern University, USA

Keynote Title: Thin-skinned: How to design switchable, conformable, and three-dimensional surfaces

Teri W. Odom is Charles E. and Emma H. Morrison Professor of Chemistry and Chair of the Chemistry Department at Northwestern University. She is an expert in designing structured nanoscale materials that exhibit extraordinary size and shape-dependent optical properties. Odom has pioneered a suite of multi-scale nanofabrication tools that have resulted in plasmon-based nanoscale lasers that exhibit tunable color, flat optics that can manipulate light at the nanoscale and beat the diffraction limit, and hierarchical substrates that show controlled wetting and super-hydrophobicity. She is on the Editorial Advisory Boards of ACS Nano, Materials Horizons, ChemNanoMat, and Bioconjugate Chemistry. She was founding Associate Editor for Chemical Science (2009-2013), founding Executive Editor of ACS Photonics (2013 – 2019), and is currently Editor-in-Chief of Nano Letters. Odom's Personal Story of Discovery was featured by ACS Publications.

Dr. Piotr G. Jablonski

School of Biological Sciences, Seoul National University, Korea

Keynote Title: Microstructures on the surface of semi-aquatic insects: discovering bio-diversity for bio-inspired engineering

Piotr G. Jablonski is a Professor at the School of Biological Sciences, Seoul National University. He is an ecologist, with interests in a variety of topics in behavioral ecology, functional ecology, ethology, neuro-ethology, field-based ornithology and entomology. He has studied Biology at the University of Warsaw, Poland, graduated in ecology from Polish Academy of Sciences (PAS), and followed his research while affiliated with the Institute of Ecology PAS, University of NY in Albany, University of Arizona in Tucson, Center for Tropical Ecology UCLA, Museum and Institute of Zoology PAS, Ewha University and Seoul National University. His multidisciplinary research often involves tight collaboration with non-ecologists and non-biologists. He is involved in collaborative research concerning micro- and nano-structural locomotory adaptations of animal surfaces.

Dr. Hans-Jürgen Butt

Max Planck Institute for Polymer Research, Germany

Keynote Title: Towards controlling drop motion

Hans-Jürgen Butt studied physics in Hamburg and Göttingen, Germany. Then he went to the Max-Planck-Institute of Biophysics in Frankfurt. After receiving his Ph.D. in 1989 he went as a post-doc to Santa Barbara, California, using the newly developed atomic force microscope. From 1990-95 he spent as a researcher back in Germany at the Max-Planck-Institute for Biophysics. In 1996 he became associate professor for physical chemistry at the University Mainz, three years later full professor at the University of Siegen. In 2002 he joined the Max-Planck-Institute of Polymer Research in Mainz as a director. His research focuses on experimental physics of soft matter interfaces. He is currently the director of the Max Planck Institute for Polymer Research.

INVITED SPEAKERS

Dr. Jiyun Kim
Department of Materials Science and Engineering, UNIST, Korea
Title: *Programmable materials and devices for next generation robotics*

Dr. Hyunjoo Jenny Lee
School of Electrical Engineering, KAIST, Korea
Title: *Ultrasound coupling medium for next-generation wearable ultrasound systems*

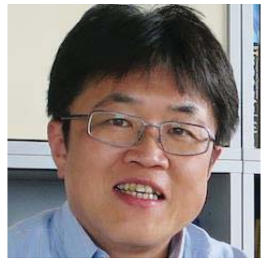
Dr. Hyuneui Lim
Department of Nature-Inspired Nanoconvergence Systems, Korea Institute of Machinery & Materials (KIMM), Korea
Title: *Nature inspired micro/nanosurfaces*

Dr. Chiara Neto
School of Chemistry, The University of Sydney, Australia
Title: *Nanobubbles explain the large slip observed on lubricant-infused surfaces*

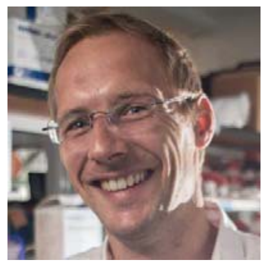
Dr. Yoonjin Won
Mechanical and Aerospace Engineering, University of California, Irvine, USA
Title: *Deep vision-inspired bubbles on artificial surfaces*

Dr. Jaime Colchero
Department of Physics, Universidad de Murcia, Spain
Title: *The Rose Petal surface, a wonder of nature: Complexity on the nanoscale*

Dr. Xu Deng
Institute of Fundamental and Frontier Sciences, University of Electronic Science and Technology of China, Chengdu, China
Title: *Multi-dimensional droplet manipulation*



Dr. Atsushi Hozumi
National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan
Title: *Anti-sticking properties of organogels derived from syneresis*



Dr. Mathias Kolle
Department of Mechanical Engineering, Massachusetts Institute of Technology, USA
Title: *Bio-inspired photonic materials*

Dr. Halim Kusumaatmaja
Department of Physics, Durham University, UK
Title: *Modelling superhydrophobic and liquid infused surfaces using diffuse interface models*

Dr. Choongyeop Lee
Department of Mechanical Engineering, Kyung Hee University, Korea
Title: *Controlling the contact time of water drop on superhydrophobic surfaces during impact*

Dr. Cunjing Lv
Department of Engineering Mechanics, Tsinghua University, China
Title: *Wetting and Marangoni Effect: Some perspectives and Applications*

Dr. Myoung-Woon Moon
Korea Institute of Science and Technology (KIST), Seoul, Korea
Title: *Capillary-induced oil removal on hierarchically porous surfaces*

Dr. Youngsuk Nam
Department of Mechanical Engineering, KAIST, Korea
Title: *Tailoring vapor-liquid condensation phenomena: challenges and opportunities*

Dr. Hyungmin Park
Department of Mechanical Engineering, Seoul National University, Korea
Title: *Control of flow around a rotating blade with wettability-controlled surfaces*

Dr. Steve Park
Department of Materials Science and Engineering, KAIST, Korea
Title: *Nature inspired electronic skin and signal processing for wearable and robotics applications*

Dr. Jungki Ryu
Ulsan National Institute of Science and Technology (UNIST), Korea
Title: *Controlling wettability of electrodes for enhanced multi-phase electrochemical reactions*

Dr. Prosenjit Sen
Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore, India
Title: *Bioinspired nanostructured bactericidal surfaces*

Dr. Richard Spontak
Department of Chemical and Biomolecular Engineering, North Carolina State University, USA
Title: *Broad-spectrum self-disinfecting polymer surfaces*

Dr. Manish K. Tiwari
Department of Mechanical Engineering, University College London (UCL), UK
Title: *Nature-inspired non-wetting surfaces: Progress towards functional trade-offs and robustness*

Dr. Kevin Turner
Department of Mechanical Engineering and Applied Mechanics, University of Pennsylvania, USA
Title: *Tuning adhesion and friction through compliance*

Dr. Steven Wang
Department of Mechanical Engineering, City University of Hong Kong, China
Title: *A new class of frictionless materials*

Dr. Sanghyuk Wooh
School of Chemical Engineering and Materials Science, Chung-Ang University, Korea
Title: *Driving droplets on liquid repellent surfaces via light-driven Marangoni propulsion*

Dr. Peng Zhang
School of Mechanical Engineering, Shanghai Jiao Tong University, China
Title: *Fabrication and characterization of a thermo-responsive surface with various wetting states*

Program at a Glance

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<tr><th></th><th>8/17 (Wednesday)</th><th>8/18 (Thursday)</th><th>8/19 (Friday)</th></tr>
<tr><td>8:30-9:00 am</td><td>Registration</td><td>Registration</td><td>Registration</td></tr>
<tr><td>9:00-9:15 am</td><td>Welcoming Remark</td><td rowspan="2">Invited 10</td><td rowspan="2">Invited 18</td></tr>
<tr><td>9:15-9:30 am</td><td rowspan="2">Invited 1</td></tr>
<tr><td>9:30-9:45 am</td><td>Regular 6</td><td>Regular 14</td></tr>
<tr><td>9:45-10:00 am</td><td rowspan="2">Invited 2</td><td>Regular 7</td><td>Regular 15</td></tr>
<tr><td>10:00-10:15 am</td><td>Regular 8</td><td>Regular 16</td></tr>
<tr><td>10:15-10:30 am</td><td>Coffee break</td><td>Coffee break</td><td>Coffee break</td></tr>
<tr><td>10:30-10:45 am</td><td rowspan="2">Invited 3</td><td rowspan="2">Invited 11</td><td rowspan="2">Invited 19</td></tr>
<tr><td>10:45-11:00 am</td></tr>
<tr><td>11:00-11:15 am</td><td>Regular 1</td><td>Regular 9</td><td rowspan="2">Invited 20</td></tr>
<tr><td>11:15-11:30 am</td><td>Regular 2</td><td>Regular 10</td></tr>
<tr><td>11:30-11:45 am</td><td>Regular 3</td><td>Regular 11</td><td>Regular 17</td></tr>
<tr><td>11:45-12:00 pm</td><td rowspan="3">Lunch</td><td rowspan="3">Lunch / Intro to Inter-university Semiconductor Research Center</td><td rowspan="3">Lunch</td></tr>
<tr><td>12:00-12:15 pm</td></tr>
<tr><td>12:15-12:30 pm</td></tr>
<tr><td>12:30-12:45 pm</td><td rowspan="4">Poster session</td><td rowspan="4">Poster session / Tour to Inter-university Semiconductor Research Center (optional)</td><td rowspan="4">Poster session</td></tr>
<tr><td>12:45-1:00 pm</td></tr>
<tr><td>1:00-1:15 pm</td></tr>
<tr><td>1:15-1:30 pm</td></tr>
<tr><td>1:30-1:45 pm</td><td rowspan="3">Keynote 1</td><td rowspan="3">Keynote 2</td><td rowspan="3">Keynote 3</td></tr>
<tr><td>1:45-2:00 pm</td></tr>
<tr><td>2:00-2:15 pm</td></tr>
<tr><td>2:15-2:30 pm</td><td rowspan="2">Invited 4</td><td rowspan="2">Invited 12</td><td rowspan="2">Invited 21</td></tr>
<tr><td>2:30-2:45 pm</td></tr>
<tr><td>2:45-3:00 pm</td><td rowspan="2">Invited 5</td><td rowspan="2">Invited 13</td><td rowspan="2">Invited 22</td></tr>
<tr><td>3:00-3:15 pm</td></tr>
<tr><td>3:15-3:30 pm</td><td rowspan="2">Invited 6</td><td rowspan="2">Invited 14</td><td rowspan="2">Invited 23</td></tr>
<tr><td>3:30-3:45 pm</td></tr>
<tr><td>3:45-4:00 pm</td><td>Coffee break</td><td>Coffee break</td><td>Regular 18</td></tr>
<tr><td>4:00-4:15 pm</td><td rowspan="2">Invited 7</td><td rowspan="2">Invited 15</td><td>Coffee break</td></tr>
<tr><td>4:15-4:30 pm</td><td rowspan="2">Invited 24</td></tr>
<tr><td>4:30-4:45 pm</td><td rowspan="2">Invited 8</td><td rowspan="2">Invited 16</td></tr>
<tr><td>4:45-5:00 pm</td><td>Regular 19</td></tr>
<tr><td>5:00-5:15 pm</td><td rowspan="2">Invited 9</td><td rowspan="2">Invited 17</td><td>Regular 20</td></tr>
<tr><td>5:15-5:30 pm</td><td rowspan="3">Award & Closing Ceremony</td></tr>
<tr><td>5:30-5:45 pm</td><td>Regular 4</td><td>Regular 12</td></tr>
<tr><td>5:45-6:00 pm</td><td>Regular 5</td><td>Regular 13</td></tr>
<tr><td>6:00-6:15 pm</td><td>Special Announcement</td><td>Group Photo</td><td></td></tr>
<tr><td>6:15-8:30 pm</td><td></td><td>Banquet</td><td></td></tr>
</table>

Program in Detail: Wednesday (August 17, 2022)

Time	Session (Chair)	Abstract Title	Presenter
8:30-9:00 am	Registration		
9:00-9:15 am	Welcoming Remarks (Prof. Haecheon Choi, Vice President of Seoul National University)		
9:15-9:30 am	Functional Materials I (Sung Jae Kim)	(Invited, Virtual) Broad-spectrum self-disinfecting polymer surfaces: Preparing for future health crises	Richard Spontak
9:30-9:45 am			
9:45-10:00 am		(Invited, Virtual) Manipulating light and color with soft and structured matter	Mathias Kolle
10:00-10:15 am			
10:15-10:30 am	Coffee Break		
10:30-10:45 am	Wetting I (Hoon Eui Jeong)	(Invited, Virtual) Multi-dimensional manipulation of solid/liquid interaction	Xu Deng
10:45-11:00 am			
11:00-11:15 am		Wetting of auxetic metamaterials	Steven Armstrong
11:15-11:30 am		(Virtual) Suppressing the Leidenfrost effect above 1000 °C for efficient thermal cooling	Mengnan Jiang
11:30-11:45 am		Droplet manipulation on topological substrates	Yahua Liu
11:45-12:00 pm	Lunch		
12:00-12:15 pm			
12:15-12:30 pm			
12:30-12:45 pm	Poster Session		
12:45-1:00 pm			
1:00-1:15 pm			
1:15-1:30 pm			
1:30-1:45 pm	Keynote I (Hyungmin Park)	(Keynote) Microstructures on the surface of semi-aquatic insects: discovering bio-diversity for bio-inspired engineering	Piotr Jablonski
1:45-2:00 pm			
2:00-2:15 pm			
2:15-2:30 pm	Wetting II (Hyungmin Park)	(Invited) Nature-inspired non-wetting surfaces: Functional trade-offs and robustness	Manish Tiwari
2:30-2:45 pm			
2:45-3:00 pm		(Invited, Virtual) Extreme superhydrophobicity: Some perspectives and applications	Cunjing Lv
3:00-3:15 pm			
3:15-3:30 pm		(Invited, Virtual) The rose petal surface, a wonder of nature: Complexity on the nanoscale	Jamie Colchero
3:30-3:45 pm			
3:45-4:00 pm	Coffee Break		
4:00-4:15 pm	Wetting III (Jiyun Kim)	(Invited) Control of flow around a rotating blade with wettability-controlled surfaces	Hyungmin Park
4:15-4:30 pm			
4:30-4:45 pm		(Invited, Virtual) Modelling superhydrophobic and liquid Infused Surfaces using diffuse interface models	Halim Kusumaatmaja
4:45-5:00 pm			
5:00-5:15 pm		(Invited, Virtual) Nature-friendly approach to create superhydrophobic and superhydrophilic materials with self-healing abilities	Atsushi Hozumi
5:15-5:30 pm			
5:30-5:45 pm		Genetic algorithm coupled to LBM simulations for optimization of superhydrophobic bioinspired textures	Alexandre Epalle
5:45-6:00 pm		(Virtual) Rough capillary rise	Jack Panter
6:00-6:15 pm	Special Announcement (Chang-Hwan Choi)	Introduction of a new Journal, Droplet	Chang-Jin "CJ" Kim

Program in Detail: Thursday (August 18, 2022)

Time	Session (Chair)	Abstract Title	Presenter
8:30-9:00 am	Registration		
9:00-9:15 am	Droplet & Bubble I (Choongyeop Lee)	(Invited) Controlling the contact time of water drop on superhydrophobic surfaces during impact	Choongyeop Lee
9:15-9:30 am			
9:30-9:45 am		(Virtual) Millimetric droplets impacting ultra-fine stainless-steel meshes resembling the penguin feather	Juliette Debray
9:45-10:00 am		Bubble-assisted plastron replenishment on superhydrophobic surfaces	Hyungyu Sung
10:00-10:15 am		Microfluidic processing within a biological fluid droplet: Autonomous sorting, concentration, and molecular filtration using the coffee ring effect	Jinsol Choi
10:15-10:30 am	Coffee Break		
10:15-10:30 am	Functional Materials II (Halim Kusumaatmaja)	(Invited) Nature Inspired micro/nanosurfaces and beyond	Hyuneui Lim
10:45-11:00 am			
11:00-11:15 am		Metachronal motion of miniaturized magnetic artificial cilia realized by integration of magnetic substructures	Zhiwei Cui
11:15-11:30 am		Sponge-like nanoporous P(VDF-TrFE)/LiCl composite platform for real-time humidity sensing	Enkhzaya Ganbold
11:30-11:45 am		(Virtual) A flexible and robust droplet electricity generator	Lili Wang
11:45-12:00 pm	Lunch / Intro to Inter-university Semiconductor Research Center (Prof. Sungjae Kim, Director)		
12:00-12:15 pm			
12:15-12:30 pm			
12:30-12:45 pm	Poster Session / Tour to Inter-university Semiconductor Research Center (optional)		
12:45-1:00 pm			
1:00-1:15 pm			
1:15-1:30 pm			
1:30-1:45 pm	Keynote II (Ho-Young Kim)	(Keynote) Thin-skinned: How to design switchable, conformable, and three-dimensional surfaces	Teri Odom
1:45-2:00 pm			
2:00-2:15 pm			
2:15-2:30 pm	Functional Materials III (Ho-Young Kim)	(Invited) Programmable materials and devices for next generation robotics	Jiyun Kim
2:30-2:45 pm			
2:45-3:00 pm		(Invited, Virtual) Ultrasound coupling medium for next-generation wearable ultrasound systems	Hyunjoo Lee
3:00-3:15 pm			
3:15-3:30 pm		(Invited, Virtual) Fabrication and characterization of a thermo-responsive surface with various wetting states	Peng Zhang
3:30-3:45 pm			
3:45-4:00 pm	Coffee Break		
4:00-4:15 pm	Functional materials IV (Steve Park)	(Invited) Controlling wettability of electrodes for enhanced multi-phase electrochemical reactions	Jungki Ryu
4:15-4:30 pm			
4:30-4:45 pm		(Invited) Control of flow dynamics during solution-based coating using surface microstructural patterning for crystallization control of thin films	Steve Park
4:45-5:00 pm			
5:00-5:15 pm		(Invited, Virtual) A new class of frictionless materials	Steven Wang
5:15-5:30 pm			
5:30-5:45 pm		(Virtual) Archaea bio-coatings in thermal-fluids systems	Ercil Toyran
5:45-6:00 pm		(Virtual) Superhydrophobic and superamphiphobic coatings for the protection of natural stone	Ioannis Karapanagiotis
6:00-8:30 pm	Banquet & Open Discussion **name tag required)** (Supported by BK21 Four, Education and Research Program for Future ICT Engineers)		

Program in Detail: Friday (August 19, 2022)

Time	Session (Chair)	Abstract Title	Presenter
8:30-9:00 am	Registration		
9:00-9:15 am 9:15-9:30 am	Adhesion (Chiara Neto)	(Invited, Virtual) Engineering surfaces with enhanced and tunable adhesion via elastic heterogeneity	Kevin Turner
9:30-9:45 am		Tribological performances of adhesive film combining bio-inspired adhesive microstructures of different shapes	Haytam Kasem
9:45-10:00 am		Design and evaluation of biodegradable mucoadhesive drug delivery system based on biomimetic mushroom-shaped microstructures	Aiman Abu Ammar
10:00-10:15 am		Electrostatic-mechanical synergistic multiscale tissue adhesion for sustainable residue-free bioelectronics Interfaces	Da Wan Kim
10:15-10:30 am	Coffee Break		
10:15-10:30 am 10:45-11:00 am	Liquid-infused and Liquid-like surfaces (Sanghyuk Wooh)	(Invited) Nanobubbles explain the large slip observed on lubricant-infused surfaces	Chiara Neto
11:00-11:15 am 11:15-11:30 am		(Invited) Capillary-induced oil removal on pitcher plant-inspired hierarchically porous surfaces	Myung Woon Moon
11:30-11:45 am		Contact-angle hysteresis and contact-line friction on slippery liquid-Like surfaces	Hernán Barrio-Zhang
11:45-12:00 pm 12:00-12:15 pm 12:15-12:30 pm	Lunch		
12:30-12:45 pm 12:45-1:00 pm 1:00-1:15 pm 1:15-1:30 pm	Poster Session		
1:30-1:45 pm 1:45-2:00 pm 2:00-2:15 pm	Keynote III (Yun Seog Lee)	(Keynote, Virtual) Towards controlling drop motion	Hans-Jürgen Butt
2:15-2:30 pm 2:30-2:45 pm	Droplet & Bubble II (Jungki Ryu)	(Invited) Driving droplets on liquid repellent surfaces via light-driven Marangoni propulsion	Sanghyuk Wooh
2:45-3:00 pm 3:00-3:15 pm		(Invited, Virtual) Deep vision-inspired bubbles on artificial surfaces	Yoonjin Won
3:15-3:30 pm 3:30-3:45 pm		(Invited, Virtual) Tailoring vapor-liquid condensation phenomena: Challenges and opportunities	Youngsuk Nam
3:45-4:00 pm		Suppressing droplet breakage by promoting fingering instability	Rutvik Lathia
4:00-4:15 pm	Coffee Break		
4:15-4:30 pm 4:30-4:45 pm	Biomaterials (Myung Woon Moon)	(Invited, Virtual) Bioinspired nanostructured bactericidal surfaces	Prosenjit Sen
4:45-5:00 pm		Polymer brushes with thermo-switchable antibacterial activity	Joanna Raczkowska
5:00-5:15 pm		Knowledge transformation between biology and engineering: a computational tool to support nature-inspired design	Sun-Joong Kim
5:15-5:30 pm 5:30-5:45 pm 5:45-6:00 pm	Award & Closing Ceremony		

List of Poster Presentation (12:30-1:30 pm, Everyday)

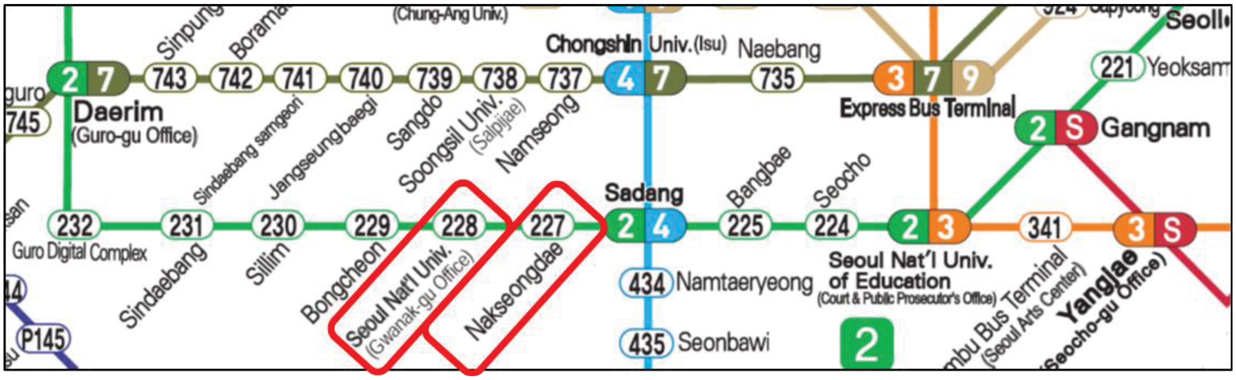
#	Abstract Title	Presenter
1	(Virtual) Self-cleaning in honeybee's antenna cleaners via a catapult effect	Wei Zhang
2	Control of pinning-free evaporation of sessile droplets from slippery surfaces	Steven Armstrong
3	(Virtual) Analytical models for the wettability of auxetic metamaterials (https://shu.zoom.us/j/97227848377)	Shruti Mandhani
4	Drag reduction study on CO_2 laser-patterned micro-structured surfaces	Diva Pradhan
5	(Virtual) Femtosecond laser texturing of micrometric pillars on 316L stainless-steel and aluminum inspired by rose petal	Salomé Basset
6	Optimizing ion permeability and selectivity in graphene oxide-based thin membranes for reverse electrodialysis power generation	Young Su Ko
7	(Virtual) Slippery liquid-infused surfaces from sand dollars (https://kaust.zoom.us/j/91862318842, Meeting ID: 918 6231 8842)	Meng Shi
8	Modulation of micro-hyperbola structures for improving oil repellency	Hyunsik Yoon
9	(Virtual) Unstable behavior of thin lubricating films under aqueous drops on slippery surfaces with and without electric field (https://zoom.us/j/97275950393?pwd=aHd6b2hXaGRWNFRSSE5sQUY5OHNwdz09, Meeting ID: 972 7595 0393, Passcode: a9Qyfb)	Bidisha Bhatt
10	Drop impact technique for printing highly conductive inks on paper	Chandantaru Dey Modak
11	(Virtual) Bilayered photothermal membranes for enhanced interfacial solar driven seawater distillation (https://sabanciuniv.zoom.us/j/3360552384, Meeting ID: 336 055 2384)	Jalal Karimzadehkhoei
12	(Virtual) Biotribology of microtextured surfaces: Effects of material hydrophilicity and stiffness (https://stevens.zoom.us/j/454256472, Meeting ID: 454 256 472, Passcode: 072722)	Yiwen Xi
13	(Virtual) Engineered microbial co-cultures living materials improves cardiac function and tissue repair (https://zoom.us/j/93058969189?pwd=UURZa2ZTQnNWUC92dU9ETzFhZlpaUT09, Meeting ID: 930 5896 9189, Passcode: 000000)	Xiao Yang
14	(Virtual) Hierarchical ZnO/NiO nanorods covered C/TiO_2 microfiber with enhanced visible-light-driven photoactivity (https://stevens.zoom.us/j/94487230571, Meeting ID: 944 8723 0571)	Zhiyu Zhang
15	Fabrication of Salvinia-inspired surfaces for hydrodynamic drag reduction using capillary-force-induced clustering	Minsu Kim
16	Aquatic Insect-inspired microplungers for machine learning–based care of skin disease	Jihyun Lee
17	Self-interfacing flexible thermal devices based on van der Waals contacts	Chaebin Park
18	A nature inspired dynamic composite that effectively suppress biofilm formation with a hybrid strategy integrating dynamic motion and nanospikes	Hyejin Jang
19	(Virtual) Ultra-stretchable, highly adhesive and self-healable hydrogels based on tannic acid-enabled dynamic interactions (https://cityu.zoom.us/j/9683122398)	Jiaying Mo
20	A subaquatic octopus sucker with electronically perceptive sensory	Gui Won Hwang
21	Hydro-phobic micro-hair structures on legs of the world largest semi-aquatic insect, the giant water strider (*Gigantometra gigas*)	Woojoo Kim
22	Magneto-responsive photothermal needle arrays for anti and de-Icing functionality	Seongjin Park
23	Stimulated snap-through inversion of an elastic hemispherical shell	Ji-Sung Park
24	Ultra-thin moth-eye inspired antireflective sticker to enhance efficiency of optical devices	Ji Seong Choi
25	A simple method for continuous synthesis of bicelles using microfluidic chip	Bong Su Kang
26	Wetting and dewetting on electrically switchable surfaces	Steven Armstrong
27	Multifunctional edible oil-infused nanoporous oxide layer on AISI 304 stainless steel	Ki Chang Bae
28	A soft adaptive gripper for extremely small or flexible objects	Uhsang Ahn
29	Biofouling-resistant tubular fluidic devices with magneto-responsive dynamic layers	Minsu Kang
30	(Virtual) Microscale stomata and xylem inspired liquid-gated membrane (https://us05web.zoom.us/j/82309200670?pwd=c3FDYVVBMFdFdWxobVhVNWVkRHd1Zz09)	Yujin Park

31	(Virtual) High-performance fuel cells with micro-hole array patterned polymer electrolyte membrane through the plasma etching method (https://us04web.zoom.us/j/6069915073?pwd=Wi80dENQeFcza2pwRnVScmkrYlBKQT09, Meeting ID: 606 991 5073, Passcode: 3hSFUP)	Changwook Seol
32	Low-friction and wear resistant silicone oil-impregnated nanoporous anodic aluminum oxide layer	Soomin Lee
33	Coalescence of freely rising oil drop with oil film backed by micropillar array	Chan Jin Park
34	A graphene sandwiched, silicon-based nanopore array for liquid cell TEM	Joowon Lim
35	Enhancement of root filling process in root canal treatment with ultrasonic effect on MTA material	Ji-Hwan Seo
36	Silicone oil impregnation to simultaneously improve corrosion resistance and wear resistance of PEO layer	Yeji Shin
37	Hydrophobicity of rare earth metal oxides and enhancing corrosion resistance of anodized aluminum	Jonghun Lee
38	The liquid-solid Amontons' laws	Hernán Barrio-Zhang
39	De-icing of hydrophobized nanoporous anodic aluminum oxide surface	Dongmin Shin
40	Dual curvature control using pneumatic actuators	Han Bi Jeong

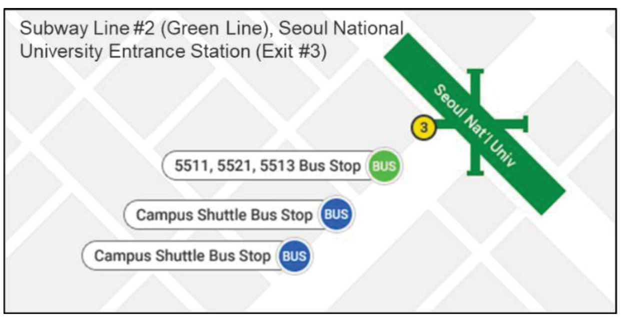
Public transportation

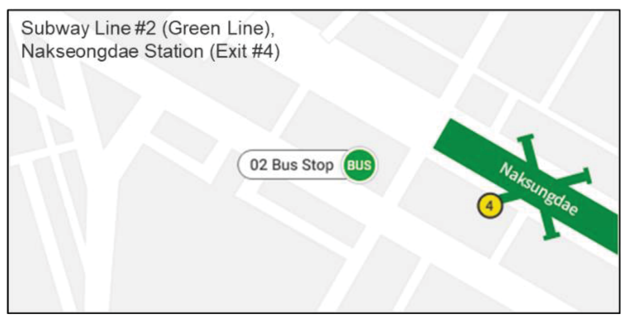
Subway

When using the subway to visit Seoul National University, make sure to take **Subway Line No. 2 (Green Line)** and get off either at the **Seoul National University Station** or the **Naksungdae Station**. Be sure not to confuse the Seoul National University Station with the Seoul National University of Education.



If you get off at the **Seoul National University Station**, exit through **Exit 3** and take **bus No. 5511 or 5513** to directly come to Bldg 301, the conference venue. If you get off at the **Naksungdae Station**, exit through **Exit 4** and take **bus No. 2** to directly come to Bldg 301. The building is at the end of the route of all the buses, hard to





miss.

From Exit 3 of **Seoul National University Station**, you can also take an Off-campus shuttle bus (free) that connects SNU Campus with SNU Station (line #2). In this case, you need to transfer to the On-campus circulation shuttle bus after arriving at the campus.
For more info about the shuttle: https://en.snu.ac.kr/about/campus/gwanak/shuttles

Limousine Bus

The 'Limousine bus' is a convenient and inexpensive way to get to SNU Gwanak Campus from Incheon International Airport. Take airport limousine bus number 6017 or 6003. The bus 6017 comes directly from Incheon to SNU back gate (Hoam Faculty House) within 70 minutes. The bus 6003 comes to SNU main gate via Gimpo Airport, and it takes 110 minutes under normal traffic conditions. Service is available everyday from early morning to night time at Incheon International Airport with no charge for the baggage.

Taxi

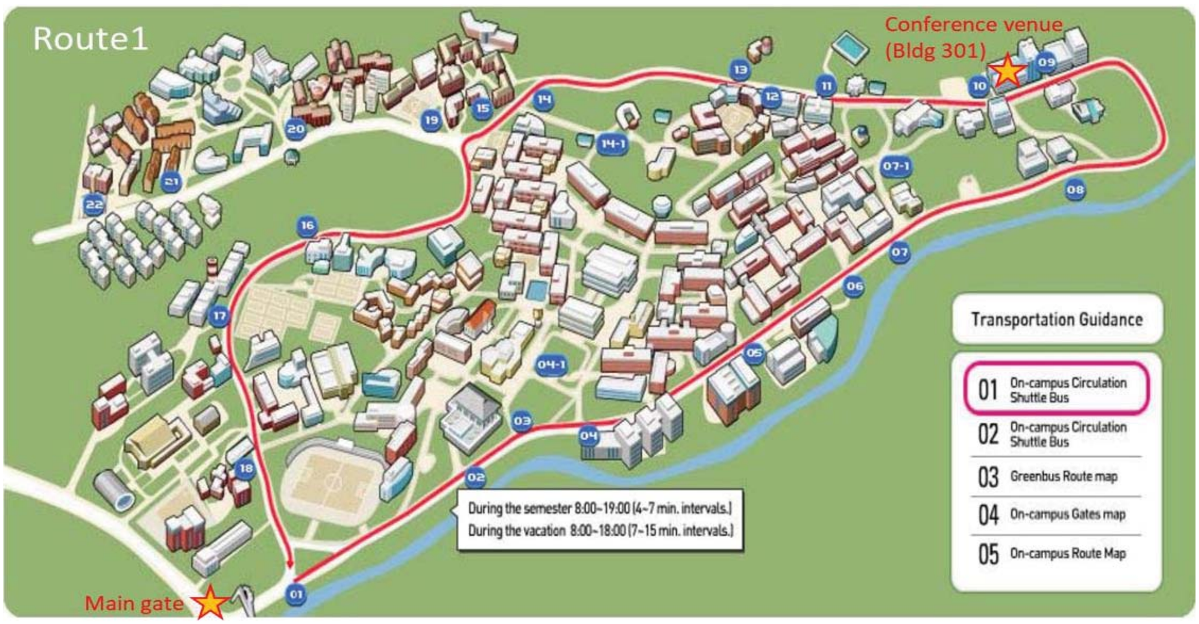
The taxi fare for coming to SNU Gwanak campus from Incheon International Airport is around 60,000 KRW depending on the traffic situation. By Deluxe Taxi (Mobeom Taxi), which offers kinder service, the approximate fare is 80,000 KRW.
For more information about public transportation:
https://en.snu.ac.kr/about/campus/gwanak/transportation

On-Campus Circulation Shuttle Bus

On campus, you can get around by on-campus circulation shuttle buses. Many students take this shuttle bus line after arriving at the main gate of SNU by city bus or airplane limousine bus.

There are two on-campus routes.

- Route1: One is circulating the whole campus counterclockwise, following the boundary of it. This route includes 18 bus stops starting from the main gate of SNU and ending at the College of Business Administration (Bldg. #58). During the academic year, this shuttle bus runs from 08:00 to 19:00 and ends one hour earlier during Summer/Winter Sessions.
- Route2: The second route is shorter. It starts from the Administration Building (Bldg. #60) and mainly visits the Engineering Building (Bldg. #301 and #302). The time schedule for this route is from 10:00 to 19:00 during the academic year only.
- **For more detailed information (shuttle)**: https://en.snu.ac.kr/about/campus/gwanak/shuttles
- **For more detailed information (campus map)**: https://en.snu.ac.kr/about/campus/gwanak/address



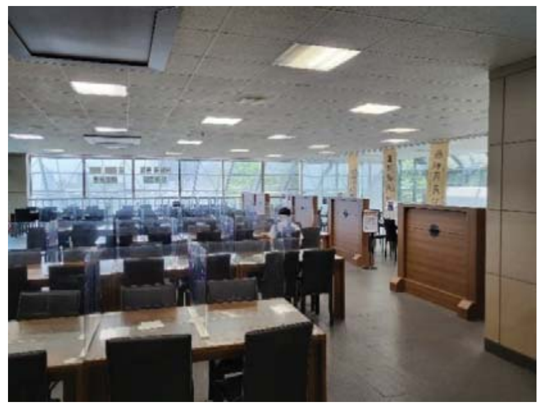
Direction to Banquet Place

The restaurant is located in building 38, B1. The blue line in the map below shows the direction from building 301 to building 38. It will take around 12 minutes by walking.

Eateries and convenience store

● Student cafeteria (Bldg 301, B1) - Asian, Chinese, Western, etc.

● Faculty cafeteria (Bldg 301, 1F) - Asian, Chinese, Western, etc.



● Quiznos (Bldg 301, B1) - Sandwich.

● Convenience store (Bldg 301, B1)

● Food court (Bldg 300, **next to Bldg 301**)

● Café (Bldg 300)

● Hamburger store (Bldg 300)