

DONGHEE SON

Associate Professor

School of Electronic & Electrical Engineering, Sungkyunkwan University,
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EDUCATION & HONORS

- Seoul National University, Republic of Korea** 08/28/2015
Doctor of Philosophy, Chemical and Biological Engineering
~ Advisor: **Prof. Dae-Hyeong Kim**
~ Thesis: “Non-volatile Memory Devices and Integrated Sensors
for Multifunctional Stretchable and Bioresorbable Electronics”
- Seoul National University, Republic of Korea** 02/26/2009
Master of Science, Interdisciplinary Program in Nanoscience and Technology
(Department of Physics & Astronomy)
~ Advisor: **Prof. Seunghun Hong**
~ Thesis: “Nanoscale Bio-sensor Probe for the Selective Detection of Calcium inside a Cell”
- Korea University, Republic of Korea** 02/24/2007
Bachelor of Science, Physics
- Sinyang Cultural Foundation, Sinyang Young Scholarship** 06/12/2015
- The Korean Academy of Science and Technology, 2018 Inter-Academy Seoul Science Forum (IASSF),
Rising Researcher (100 under the age of 35)** 09/21/2018
- The Korean Society of Industrial and Engineering Chemistry, Miwon Commercial Co., Ltd.,
Young Scientist** 10/31/2019
- Research Excellence Award, College of Information and Communication Engineering, SKKU** 02/29/2024
- 2024-1 Science Technology and Researcher (이달의 과학기술인상), Ministry of Science and ICT** 04/01/2024

PROFESSIONAL EXPERIENCE

- SKKU, School of Electronic and Electrical Engineering** 09/01/2023 – Present
Associate Professor
- SKKU, School of Electronic and Electrical Engineering** 09/01/2019 – 08/31/2019
Assistant Professor
- KIST-Sungkyunkwan University, Carbon-Neutral Research Center** 03/01/2022 – 02/28/2025
Adjunct Professor
- KIST, Biomedical Research Institute, Center for Bionics** 08/01/2017 – 08/31/2019
Senior Research Scientist

KIST-Yonsei University, College of Engineering
08/31/2019
Adjunct Professor

04/16/2019 –

Stanford University, Chemical Engineering
Post-doctoral Research Fellow (Advisor: Prof. Zhenan Bao)

06/14/2016-06/30/2017

Institute for Basic Science (IBS), Center for Nanoparticle Research
Post-doctoral Research Fellow (Advisor: Prof. Dae-Hyeong Kim)

09/01/2015-06/12/2016

Seoul National University, Institute of Chemical Processes
Researcher (Advisor: Prof. Taeghwan Hyeon)

2011-2012

R&D ReRAM Device Research, Hynix Semiconductor
Senior researcher

02/09/2009-03/17/2011

Associate Editor and Topic Editor, Flexible Electronics, Frontiers in Electronics

06/15/2022-Present

Guest Associate Editor, Bioelectronics, Frontiers in Electronics

10/31/2022-Present

Special Issue: Synthesis, properties, and applications of self-healing polymers and composites

Associate Editor, Biomechanics, Frontiers in Bioengineering and Biotechnology
Special Issue: Flexible Optoelectronics

09/16/2023-Present

Guest Editor, IEEE Journal of Selected Topics in Quantum Electronics
Special Issue: Flexible Optoelectronics

11/24/2022-06/30/2024

As FIRST & CORRESPONDING AUTHOR, ARTICLES PUBLISHED IN JOURNALS

"Intrinsically stretchable sensory-neuromorphic system for sign language translation"

Jiyong Yoon⁺, Jaehyon Kim⁺, Hyunjin Jung, Jeong-Ick Cho, Jin-Hong Park, Mikyung Shin, In Soo Kim, Joohoon Kang, and **Donghee Son***

Current Opinion in Solid State & Materials Science **29**, 101142 (2024)

"Sticky and strain-gradient artificial epineurium for sutureless nerve repair in rodents and nonhuman primates"

Duhwan Seong⁺, Yeonsun Choi⁺, In Cheul Choi⁺, Jae Hyuk choi, Ji Hun Park, Jae Jun Nam, Jaewon Ju, Hyun Jae Ryoo, Donghee Kwak, Joonyeol Lee, Seong-Gi Kim, Dong Hwee Kim, Jong Woong Park*, Mikyung Shin*, and **Donghee Son***

Advanced Materials **2307810** (2024)

"Strain-sensitive injection-on-skin adhesive for interactive human-machine interface"

Sumin Kim⁺, Jaepyo Jang⁺, Kyumin Kang, Subin Jin, Heewon Choi, **Donghee Son***, and Mikyung Shin*

Advanced Materials **2307070** (2023)

"Injectable tissue prosthesis for instantaneous closed-loop rehabilitation"

Subin Jin⁺, Heewon Choi⁺, Duhwan Seong, Chang-Lim You, Jong-Sun Kang, Seunghyok Rho, Won Bo Lee, **Donghee Son***, and Mikyung Shin*

Nature **623**, 58 (2023)

"Adhesive bioelectronics for sutureless cardiac interfacing"

Heewon Choi⁺, Yewon Kim⁺, Sumin Kim⁺, Hyunjin Jung, Sungjun Lee, Kyoungryong Kim, Hyung-Seop Han, Mikyung

Shin*, and Donghee Son*

Nature Electronics 6, 779 (2023)

"Injectable and tissue-conformable conductive hydrogel for MRI-compatible brain-interfacing electrodes"

Sung Dong Kim⁺, Kyuha Park⁺, Sungjun Lee⁺, Jeungeun Kum, Yewon Kim, Soojung An, Hyungmin Kim, Mikyung Shin*, and Donghee Son*

Soft Science 3:18 (2023)

"Modular wearable optoelectronic system using photoactive nanomembranes"

Kyumin Kang⁺, Hannh Kwon⁺, Okin Song⁺, Tae Ri Yang, Joohoon Kang*, In Soo Kim*, and Donghee Son*

Nano Energy 111, 108446 (2023)

"Resealable anti-thrombotic artificial vascular graft integrated with a self-healing blood flow sensor"

Kijun Park⁺, Soojung An⁺, Jihyun Kim⁺, Sungjun Yoon, Jiayang Song, Daekwang Jung, Donghee Son*, Jungmok Seo*

ACS Nano 17, 7296 (2023)

"Photoactive materials and devices for energy-efficient soft wearable optoelectronic systems"

Sangkyu Lee⁺, Jihyun Kim⁺, Hannah Kwon⁺, Donghee Son*, In Soo Kim*, and Joohoon Kang*

Nano Energy 110, 108379 (2023)

"A stretchable nanoscale dielectric for large-area wearable electronics"

Ja Hoon Koo and Donghee Son*

Nature Electronics (Research Briefing) 6, 107 (2023)

"Vacuum-deposited stretchable polymer dielectric and its application to soft carbon nanotube electronics"

Ja Hoon Koo⁺, Juyeon Kang⁺, Sungjun Lee⁺, Jun-Kyul Song, Junhwan Choi, Jiyong Yoon, Sung-Hyuk Sunwoo, Sung-Hyuk Sunwoo, Dong Chan Kim, Wangwoo Nam, Dae-Hyeong Kim*, Sung Gap Im*, and Donghee Son*

Nature Electronics 6, 135 (2023)

"Balanced Coexistence of Reversible and Irreversible Covalent Bonds in a Conductive Triple Polymeric Network Enables Stretchable Hydrogels with High Toughness and Adhesiveness"

Kyuha Park⁺, Kyumin Kang⁺, Jungwoo Kim, Subin Jin, Mikyung Shin*, and Donghee Son*

ACS Applied Materials & Interfaces 14, 56395 (2022)

"Reversible electrical percolation in a stretchable and self-healable silver-gradient nanocomposite bilayer"

Jinhong Park⁺, Duhwan Seong⁺, Yongjun Park⁺, Sang Hyeok Park, Hyoung Won Baac, Mikyung Shin, Seunghyun Lee, Minbaek Lee*, and Donghee Son*

Nature Communications 13, 5233 (2022)

"Stretchable colour-sensitive quantum dot nanocomposites for shape-tunable multiplexed phototransistor arrays"

Jun-Kyul Song⁺, Junhee Kim⁺, Jiyong Yoon⁺, Ja Hoon Koo⁺, Kyumin Kang, Hyunjin Jung, Sung-Hyuk Sunwoo, Seungwon Yoo, Hogeun Chang, Jinwoung Jo, Woonhyuk Baek, Sanghwa Lee, Mikyung Shin, Taeghwan Hyeon*, Dae-Hyeong Kim*, and Donghee Son*

Nature Nanotechnology 17, 849 (2022)

"Molecular rationale for the design of instantaneous, strain-tolerant polymeric adhesive in a stretchable underwater human-machine interface"

Yeonsun Choi⁺, Kyumin Kang⁺, Donghee Son*, and Mikyung Shin*

ACS Nano 16, 1368 (2022)

"Electrostatic-mechanical synergistic in situ multiscale tissue adhesion for sustainable residue-free bioelectronics interface"

Da Wan Kim⁺, Kang-Il Song⁺, Duhwan Sung, Yeon Soo Lee, Sangyul Baik, Jin Ho Song, Heon Joon Lee, Donghee Son*, and Changhyun Pang*

Advanced Materials, 34, 2105338 (2022)

Back Cover Article

"Quantitative evaluation of line-edge roughness in various FinFET structures: Bayesian neural network with automatic model selection"

Sangho Yu, Sang Min Won, Hyong Won Baac, **Donghee Son*** and Changhwan Shin*

IEEE Access **10**, 26340 (2022)

"Lead-Sealed Stretchable Underwater Perovskite-Based Optoelectronics via Self-recovering Polymeric Nanomaterials"

Jinhyun Kim, Duhwan Seong, Hannah Kwon, Subin Jin, Hyejun Kim, Kwanil Lee, Seok Joon Kwon, Mikyung Shin, **Donghee Son***, and In Soo Kim^{1,8*}

ACS Nano, **15**, 20127 (2021)

"A bioinspired stretchable sensory-neuromorphic system"

Sun Hong Kim⁺, Geun Woo Baek⁺, Jiyong Yoon⁺, Seunghwan Seo, Jinhong Park, Donghyo Hahm, Jun Hyuk Chang, Duhwan Seong, Hyunseon Seo, Seyong Oh, Kyunghwan Kim, Heeyoung Jung, Youngsu Oh, Hyoung Won Baac, Batyrbek Alimkhanuly, Wan Ki Bae, Seunghyun Lee, Minbaek Lee, Jeonghun Kwak^{*}, Jin-Hong Park^{*} and **Donghee Son***

Advanced Materials ("Rising Stars" series) **33**, 2104690 (2021)

Hot Topic: Gold (Hot Topics in chemistry and materials)

"Soft Implantable Bioelectronics"

Ja Hoon Koo⁺, Jun-Kyul Song⁺, Dae-Hyeong Kim^{*}, and **Donghee Son***

ACS Materials Letters **3**, 1528 (2021)

Front Cover Article

"Mechanically and electrically durable, stretchable electronic textile for robust wearable electronics"

Sun Hong Kim⁺, Yewon Kim⁺, Heewon Choi, Juhyung Park, Jeong Han Song, Hyoung Won Baac, Mikyung Shin, Jeonghun Kwak, and **Donghee Son***

RSC Advances **11**, 22327-22333 (2021)

"Durable and fatigue-resistant soft peripheral neuroprosthetics for *in vivo* bi-directional signaling"

Hyunseon Seo⁺, Sang Ihn Han⁺, Kang-Il Song⁺, Duhwan Seong, Kyungwoo Lee, Sun Hong Kim, Taesung Park, Ja Hoon Koo, Mikyung Shin, Hyoung Won Baac, Ok Kyu Park, Soong Ju Oh, Hyung-Seop Han, Hojeong Jeon, Yu-Chan Kim, Dae-Hyeong Kim^{*}, Taeghwan Hyeon^{*} and **Donghee Son***

Advanced Materials 2007346, <https://doi.org/10.1002/adma.202007346> (2021)

"Self-bondable and Stretchable Conductive Composite Fibers with Spatially Controlled Percolated Ag Nanoparticle Networks: Novel Integration Strategy for Wearable Electronics"

Chaebeen Kwon⁺, Duhwan Seong⁺, Jeong-Dae Ha, Dongwon Chun, Jee-Hwan Bae, Kukro Yoon, Minkyu Lee, Janghoon Woo, Chihyeong Won, Seungmin Lee, Yongfeng Mei, Kyung-In Jang, **Donghee Son***, and Taeyoon Lee^{*}

Advanced Functional Materials **30**, 2070321, (2020)

Cover Article: https://doi.org/10.1002/adfm.202070321

"Adaptive self-healing electronic epineurium for chronic bidirectional neural interfaces"

Kang-Il Song⁺, Hyunseon Seo⁺, Duhwan Seong, Seunghoe Kim, Ki Jun Yu, Yu-Chan Kim, Jinseok Kim, Seok Joon Kwon, Inchan Youn^{*}, Hyojin Lee^{*}, and **Donghee Son***

Nature Communications **11**, Article number: 4195 (2020)

"Unconventional Device and Material Approaches for Monolithic Biointegration of Implantable Sensors and Wearable Electronics"

Ja Hoon Koo, Jun-Kyul Song, Seungwon Yoo, Sung-Hyuk Sunwoo, **Donghee Son***, and Dae-Hyeong Kim^{*}

Advanced Materials Technologies 2000407 doi.org/10.1002/admt.202000407 (2020)

"Strain-sensitive stretchable self-healable semiconducting film for multiplexed skin-like sensor array"

Jin-young Oh⁺, **Donghee Son***, Toru Katsumata⁺, Yeongjun Lee, Yeongin Kim, Jeffrey Lopez, Hung-Chin Wu, Jiheong Kang¹, Joonsuk Park, Xiaodan Gu, Jaewan Mun, Nathan Ging-Ji Wang, Yikai Yin, Youngjun Yun, Jeffrey B.-H. Tok and Zhenan Bao^{*}

Science Advances **5**, eaav3097 (2019)

"Nanomaterial-based Flexible and Stretchable Bioelectronics"

Jun-Kyul Song⁺, Kyungsik Do⁺, Ja Hoon Koo, **Donghee Son^{*}**, and Dae-Hyeong Kim^{*}
MRS Bulletin 44, 643-654 (2019)

"Nanomaterials in Skin-Inspired Electronics: Toward Soft and Robust Skin-Like Electronic Nano-Systems"
Donghee Son and Zhenan Bao^{*}
ACS Nano 12, 11731-11739 (2018) *Cover Article, Featured in ACS Editors' Choice*

"An ultra-stretchable and self-healable nanocomposite conductor enabled by autonomously percolative electrical pathways"
Sunhong Kim⁺, Hyunseon Seo⁺, Jiheong Kang⁺, Jaeyoung Hong, Han-Jin Kim, Jaemin Kim, Jaewan Mun, Inchan Youn, Jinseok Kim, Hyun-Kwang Seok, Changhee Lee, Jeffrey B.-H. Tok, Zhenan Bao^{*}, and **Donghee Son^{*}**
ACS Nano 13, 6531-6539 (2019)

"Modular and reconfigurable stretchable electronic systems"
Jiheong Kang⁺, **Donghee Son⁺**, Orestis Vardoulis⁺, Jaewan Mun, Naoji Matsuhisa, Yeongin Kim, Jaemin Kim, Jeffrey B.-H. Tok, Zhenan Bao^{*}
Advanced Materials Technologies 1800417, <https://doi.org/10.1002/admt.201800417> (2018)

"An integrated self-healable electronic skin system fabricated via dynamic reconstruction of nanostructured conducting network"
Donghee Son⁺, Jiheong Kang⁺, Orestis Vardoulis⁺, Yeongin Kim, Naoji Matsuhisa, Jin Young Oh, John WF To, Jaewan Mun, Toru Katsumata, Yuxin Liu, Allister F. McGuire, Marta Krasen, Francisco Molina Lopez, Jooyeun Ham, Ulrike Kraft, Yeongjun Lee, Youngjun Yun, Jeffrey B.-H. Tok, Zhenan Bao^{*}
Nature Nanotechnology 13, 1057 (2018)
(Nano Today, News, 'Skin-like nanowire-polymer composite heals itself' 22, 1-6 (2018))

"Tough and water-insensitive self-healing elastomer for robust electronic skin"
Jiheong Kang⁺, **Donghee Son⁺**, Ging-Ji Nathan Wang, Yuxin Liu, Jeffrey Lopez, Yeongin Kim, Jin-young Oh, Toru Katsumata, Jaewan Mun, Yeongjun Lee, Lihua Jin, Jeffrey B.-H. Tok, and Zhenan Bao^{*}
Advanced Materials 30, 1706846 (2018)

"Wearable force touch sensor array using a flexible and transparent electrode"
Jun-Kyul Song⁺, **Donghee Son⁺**, Jaemin Kim⁺, Young Jin Yoo, Gil Ju Lee, Liu Wang, Moon Kee Choi, Jiwoong Yang, Mincheol Lee, Kyungsik Do, Ja Hoon Koo, Nanshu Lu, Ji Hoon Kim, Taeghwan Hyeon, Young Min Song^{*} and Dae-Hyeong Kim^{*}
Advanced Functional Materials 27, 1605286 (2017)

"Colloidal synthesis of uniform-sized molybdenum disulfide nanosheets for wafer-scale flexible nonvolatile memory"
Donghee Son⁺, Sue In Chae⁺, Myungbin Kim⁺, Moon Kee Choi, Jiwoong Yang, Kunsu Park, Vinayak S. Kale, Ja Hoon Koo, Changsoon Choi, Minbaek Lee, Ji Hoon Kim, Taeghwan Hyeon^{*} and Dae-Hyeong Kim^{*}
Advanced Materials 28, 9326 (2016)

"Wearable multiplexed array of silicon nonvolatile memory using nanocrystal charge confinement"
Jaemin Kim⁺, **Donghee Son⁺**, Mincheol Lee⁺, Changyeong Song, Jun-Kyul Song, Ja Hoon Koo, Dong Jun Lee, Hyung Joon Shim, Ji Hoon Kim, Minbaek Lee, Taeghwan Hyeon and Dae-Hyeong Kim^{*}
Science Advances 2, e1501101 (2016)

"Bioresorbable Electronic Stent Integrated with Therapeutic Nanoparticles for Endovascular Diseases"
Donghee Son⁺, Jongha Lee⁺, Dong Jun Lee⁺, Roozbeh Ghaffari, Sumin Yun, Seok Joo Kim, Ji Eun Lee, Hye Rim Cho, Soonho Yoon, Shixuan Yang, Seunghyun Lee, Shutao Qiao, Daishun Ling, Sanghun Shin, Jun-Kyul Song, Jaemin Kim, Taeho Kim, Hakyong Lee, Jonghoon Kim, Min Soh, Nohyun Lee, Cheol Seong Hwang, Sangwook Nam, Nanshu Lu, Taeghwan Hyeon^{*}, Seung Hong Choi^{*}, and Dae-Hyeong Kim^{*}
ACS Nano 9, 5937 (2015)

"Stretchable Carbon Nanotube Charge-Trap Floating-Gate Memory and Logic Devices for Wearable Electronics"
Donghee Son⁺, Ja Hoon Koo⁺, Jun-Kyul Song⁺, Jaemin Kim, Minchel Lee, Hyung Joon Shim, Minjoon Park, Minbaek Lee, Ji Hoon Kim, and Dae-Hyeong Kim^{*}
ACS Nano 9, 5585 (2015)

"Transparent and Stretchable Interactive Human Machine Interface Based on Patterned Graphene Heterostructures"

Sumin Lim⁺, Donghee Son⁺, Jaemin Kim⁺, Young Bum Lee, Jun-Kyul Song, Suji Choi, Dong Jun Lee, Ji Hoon Kim, Minbaek Lee, Taeghwan Hyeon and Dae-Hyeong Kim*

Advanced Functional Materials 25, 375 (2015)

"Multifunctional wearable devices for diagnosis and therapy of movement disorders"

Donghee Son⁺, Jongha Lee⁺, Shutao Qiao, Roozbeh Ghaffari, Jaemin Kim, Ji Eun Lee, Changyeong Song, Seok Joo Kim, Dong Jun Lee, Samuel Woojoo Jun, Shixuan Yang, Minjoon Park, Jiho Shin, Kyungsik Do, Mincheol Lee, Kwanghun Kang, Cheol Seong Hwang, Nanshu Lu, Taeghwan Hyeon and Dae-Hyeong Kim*

Nature Nanotechnology 9, 397 (2014)

(Nature, Research Highlights, Stick-on skin sensor measures motion, 508, 10 (2014))

(Nature, News, 'Electronic skin' equipped with memory (2014))

(Science, News, Forget Smart Watches, 'Smart Skin' May Be the Next Big Thing in Wearable Computers (2014))

"Nanoneedle Transistor-Based Sensors for the Selective Detection of Intracellular Calcium Ions"

Donghee Son⁺, Sung Young Park⁺, Byeongju Kim⁺, Jun Tae Koh, Tae Hyun Kim, Sangmin An, Doyoung Jang, Gyu Tae Kim, Wonho Jhe, and Seunghun Hong*

ACS Nano 5, 3888 (2011)

As co-AUTHOR, ARTICLES PUBLISHED IN JOURNALS

"Defect-Engineered Semiconducting van der Waals Thin Film at Metal–Semiconductor Interface of Field-Effect Transistors"

Jihyun Kim, Dongjoon Rhee, Myeongjin Jung, Gang Jin Cheon, Kangsan Kim, Jae Hyung Kim, Ji Yun Park, Jiyong Yoon, Dong Un Lim, Jeong Ho Cho, In Soo Kim, Donghee Son, Deep Jariwala, and Joohoon Kang*

ACS Nano In press (2023)

"Functional Radiative Cooling: Basic Concepts, Materials, and Best Practices in Measurements"

Pengfei Liu, Sangwook Bae, Jaebom Noh, Minjeong Kim, Jae Won Heo, Donghee Son, Joohoon Kang, Junsuk Rho, Sunae So, Jin Gu Kang, In Soo Kim*

ACS Applied Electronic Materials 5, 5755 (2023)

"Electrochemically Exfoliated Phosphorene Nanosheet Thin-Films for Wafer-Scale Near-Infrared Phototransistor Array"

Youngeo Jeon, Dongjoon Rhee, Bing Wu, Vlastimil Mazanek, In Soo Kim, Donghee Son, Zdeněk Sofer, and Joohoon Kang*

npi 2D Materials and Applications 6, Article number: 82 (2022)

"A hemispherical image sensor array fabricated with organic photo-memory transistors"

Yeongin Kim, Chenxin Zhu, Wen-Ya Lee, Anna Smith, Haowen Ma, Xiang Li, Donghee Son, Naoji Matsuhisa, Jaemin Kim, Won G. Bae, Sung Ho Cho, Myung-Gil Kim, Tadanori Kurosawa, Toru Katsumata, John W.F. To, Jin Young Oh, Seonghyun Paik, Soo Jin Kim, Lihua Jin, Feng Yan, Jeffrey B.-H. Tok, Zhenan Bao*

Advanced Materials 2203541 (2022)

"Micro-ultrasonic Assessment of Early Stage Clot Formation and Whole Blood Coagulation Using an All-Optical Ultrasound Transducer and Adaptive Signal Processing Algorithm"

Deblina Biswas, Jeongmin Heo, Pilgyu Sang, Prasanta Dey, Kayoung Han, Jong Hwan Ko, Sang Min Won, Donghee Son, Minah Suh, Hyung Sik Kim, Jong G Ok, Hui Joon Park*, Hyoung Won Baac*

ACS Sensor online publication (2022) (doi.org/10.1021/acssensors.2c00875)

"Addressing the Shortcomings of Polyphenol-Derived Adhesives: Achievement of Long Shelf Life for Effective Hemostasis"

Jaewon Ju, Subin Jin, Sumin Kim, Jae Hyuk Choi, Haesung A. Lee, Donghee Son, Haeshin Lee,* and Mikyung Shin *

ACS Applied Materials & Interfaces 14, 25115 (2022)

"Study on memory characteristics of fin-shaped feedback field effect transistor"

Shinick Han, Younghyun Kim, **Donghee Son**, Hyong Won Baac, Sang Min Won*, Changhwan Shin*

Semiconducting Science and Technology 37, 065006 (2022)

"Design of JL-CFET(junctionless complementary field effect transistor)-based inverter for low power applications"

Sumi Lee, Yejoo Choi, Sang Min Won, **Donghee Son**, Hyong Won Baac*, and Changhwan Shin*

Semiconducting Science and Technology 37, 035019 (2022)

"Optically anisotropic topical hemostatic coacervate for naked-eye identification of blood coagulation"

Subin Jin, Sumin Kim, Dae Seok Kim, **Donghee Son**, and Mikyung Shin*

Advanced Functional Materials 2110320 (2021)

"Variable-focus optoacoustic lens with wide dynamic range and long focal length by using a flexible polymer nano-composite membrane"

Muhammad Awais Abbasi, Muhammad Faraz, Min Gyu Joo, **Donghee Son**, Sang Min Won, Jong G. Ok, Hui Joon Park, Hyoung Won Baac*

Ultrasonics 117, 106545 (2021)

"Highly stretchable white-light electroluminescent devices with gel-type silica-coated all-inorganic perovskite"

Sang Yeop Lee, Sanghyun Jeon, Junhyuk Ahn, Junsung Bang, Ho Kun Woo, Kyu-joon Lee, Byung Ku Jung, Taesung Park, **Donghee Son**, Jae-Pyoung Ahn, Soong Ju Oh*

Applied Surface Science 563, 150229 (2021)

"An artificial neural tactile sensing system "

Sungwoo Chun⁺, Jong-Seok Kim⁺, Yongsang Yoo, Youngin Choi, Sung Jun Jung, Dongpyo Jang, Gwangyeob Lee, Kang-Il Song, Kum Seok Nam, Inchan Youn, **Donghee Son**, Changhyun Pang, Yong Jeong, Hachul Jung, Young-Jin Kim, Byong-Deok Choi, Wanjun Park, and Seongjun Park*

Nature Electronics 4, 429 (2021)

"Laser-generated focused ultrasound transducer using a perforated photoacoustic lens for tissue characterization"

Jeongmin Heo, Deblina Biswas, Kyu Kwan Park, **Donghee Son**, Hui Joon Park, Hyoung Won Baac*

Biomedical Optics Express 12, 1375 (2021)

"Stretchable and Robust Candle-Soot Nanoparticle-Polydimethylsiloxane Composite Films for Laser-Ultrasound Transmitters"

Muhammad Faraz, Muhammad Awais Abbasi, Pilgyu Sang, Sungjun Lee, **Donghee Son**, Hyoung Won Baac*

Micromachines 11, 631 doi.org/10.3390/mi11070631 (2020)

"Ink development and printing of conducting polymers for intrinsically stretchable interconnects and circuits"

Ulrike Kraft, Francisco Molina-Lopez, **Donghee Son**, Zhenan Bao*, Boris Murmann*

Advanced Electronic Materials 1900681 (2019)

"Surface-Controlled Molecular Self-Alignment in Polymer Actuators for Flexible Microrobot Applications "

Minsu Jang⁺, Jun Sik Kim⁺, Ji-Hun Kim, Do Hyun Bae, Min Jun Kim, **Donghee Son**, Yong-Tae Kim, Soong Ho Um*, Yong Ho Kim*, Jinseok Kim*

Polymers 11, 736 doi:10.3390/polym11040736 (2019)

"Stretchable organic optoelectronic sensorimotor synapse"

Yeongjun Lee⁺, Jin Young Oh⁺, Wentao Xu, Onnuri Kim, Taeho Roy Kim, Jiheong Kang, Yeongin Kim, **Donghee Son**, Jeffery B.-H. Tok, Moon Jeong Park, Zhenan Bao*, Tae-Woo Lee*

Science Advances 4, eaat7387 DOI: 10.1126/sciadv.aat7387 (2018)

"A bioinspired flexible organic artificial afferent nerve"

Yeongin Kim⁺, Alex Chortos⁺, Wentao Xu⁺, Yuxin Liu, Jin Young Oh, **Donghee Son**, Jiheong Kang, Amir M. Foudeh, Chenxin Zhu, Yeongjun Lee, Simiao Niu, Jia Liu, Raphael Pfattner, Zhenan Bao*, Tae-Woo Lee*

Science 360, 998 (2018)

"Deformable Organic Nanowire Field-Effect Transistors"

Yeongjun Lee, Jin Young Oh, Taeho Roy Kim, Xiaodan Gu, Yeongin Kim, Ging-Ji Nathan Wang, Hung-Chin Wu, Raphael Pfattner, John W.F. To, Toru Katsumata, **Donghee Son**, Jigheong Kang, James R. Matthews, Weijun Niu, Mingqian He, Robert Sinclair, Yi Cui, Jeffrey B.-H. Tok, Tae-Woo Lee*, Zhenan Bao*
Advanced Materials 1704401 (2018)

"Human-eye-inspired soft optoelectronic device using high-density MoS₂-graphene curved image sensor array"

Changsoon Choi⁺, Moon Kee Choi⁺, Siyi Liu⁺, Min Sung Kim, Ok Kyu Park, Changkyun Im, Jaemin Kim, Xiaoliang Qin, Gil Ju Lee, Kyoung Won Cho, Myungbin Kim, Eehyung Joh, Jongha Lee, **Donghee Son**, Seung-Hae Kwon, Noo Li Jeon, Young Min Song*, Nanshu Lu*, and Dae-Hyeong Kim*
Nature Communications 8, 1664 (2017)

"Wearable Electrocardiogram Monitor Using Carbon Nanotube Electronics and Color-Tunable Organic Light-Emitting Diodes"

Ja Hoon Koo⁺, Seongjin Jeong⁺, Hyung Joon Shim, **Donghee Son**, Jaemin Kim, Dong Chan Kim, Suji Choi, Jong-In Hong, and Dae-Hyeong Kim*
ACS Nano 11, 10032 (2017)

"Ultra-Wideband Multi-Dye-Sensitized Upconverting Nanoparticles for Information Security Application"

Jongha Lee, Byeongjun Yoo, Hakyong Lee, Gi Doo Cha, Hee-Su Lee, Youngho cho, Sang Yeon Kim, Hyunseon Seo, Woongchan Lee, **Donghee Son**, Myungjoo Kang, Hyung Min Kim, Yong Il Park, Taeghwan Hyeon* and Dae-Hyeong Kim*
Advanced Materials 29, 1603169 (2017)

"Oxide Nanomembrane Hybrids with Enhanced Mechano- and Thermo- Sensitivity for Semitransparent Epidermal Electronics"

Minjoon Park⁺, Kyungsik Do⁺, Jaemin Kim⁺, **Donghee Son**, Ja Hoon Koo, Jinkyung Park, Jun-Kyul Song, Ji Hoon Kim, Minbaek Lee, Taeghwan Hyeon and Dae-Hyeong Kim*
Advanced Healthcare Materials 4, 992 (2015)

"Stretchable silicon nanoribbon electronics for skin prosthesis"

Jaemin Kim⁺, Mincheol Lee⁺, Hyung Joon Shim⁺, Roozbeh Ghaffari, Hye Rim Choi, **Donghee Son**, Yei Hwan Jung, Min Soh, Changsoon Choi, Sungmook Jung, Kon Chu, Daejong Jeon, Soon-Tae Lee, Ji Hoon Kim, Seung Hong Choi, Taeghwan Hyeon and Dae-Hyeong Kim*
Nature Communiucations 5:5747 (2014).

"Comparison Study between Dialysis Electrode and CNT Probe for Neurotransmitter Monitoring"

Gi Ja Lee, Seok Keun Choi, Yun Hye Eo, Ji Eun Lim, Jong Ho Han, Samjin Choi, Jeong Hoon Park, **Dong Hee Son**, S. Hong, Bum Seok Oh, and Hun Kuk Park*
Biochip Journal 3, 82 (2009).

BOOK CHAPTERS

"High-performance Wearable Bioelectronics Integrated with Functional Materials" a chapter in "Stretchable Bioelectronics for Medical Devices and Systems"

Donghee Son, Ja Hoon Koo, Jongsu Lee, and Dae-Hyeong Kim
edited by John A. Rogers, Roozbeh Ghaffari and Dae-Hyeong Kim, Springer 2016

CONFERENCE PUBLICATIONS

"Stretchable Inorganic Nanomembrane Electronics for Healthcare Devices"

Dae-Hyeong*, **Donghee Son**, Jaemin Kim
Proceedings of SPIE 9467, DOI:10.1117/12.2176535 (2015).

"Highly reliable and fast nonvolatile hybrid switching ReRAM memory using thin Al₂O₃ demonstrated at 54nm memory array"

Jaeyun Yi, Hyejung Choi, Seunghwan Lee, Jaeyeon Lee, **Donghee Son**, Sangkeum Lee, Sangmin Hwang, Seokpyo Song, Jinwon Park, Sookjoo Kim, Wangee Kim, Ja-Yong Kim, Sunghoon Lee, Jiwon Moon, Jinju You, Moonsig Joo, JaeSung Roh, Sungki Park, Sung-Woong Chung, Junghoon Lee, Sung-Joo Hong
Proc. Symp. VLSI Technol., 48 (2011).

"The Effect of Tunnel Barrier at Resistive Switching Device for Low Power Memory Applications"

Hyejung Choi, Jaeyun Yi, Sangmin Hwang, Sangkeum Lee, Seokpyo Song, Seunghwan Lee, Jaeyeon Lee, **Donghee Son**, Jinwon Park, Suk-Ju Kim, Ja-Yong Kim, Sunghoon Lee, Jiwon Moon, Choidong Kim, Jungwoo Park, Moonsig Joo, JaeSung Roh, Sungki Park, Sung-Woong Chung, Junghoon Rhee, Sung Joo Hong
IEEE Int. Memory Workshop., 1 (2011)

"Requirements of bipolar switching ReRAM for 1T1R type high density memory array"

Jaeyun Yi, Hyejung Choi, Seokpyo Song, **Donghee Son**, Sangkeum Lee, Jinwon Park, Wangee Kim, Mingyu Sung, Sunghoon Lee, Jiwon Moon, Choidong Kim, Jungwoo Park, Moonsig Joo, JaeSung Roh, Sungki Park, Sung-Woong Chung, Jaegoan Jeong, Sung-Joo Hong, Sung-Wook Park
Proc. Symp. VLSI Technol., 1 (2011)

"Vertical double gate Z-RAM technology with remarkable low voltage operation for DRAM application"

Joong-Sik Kim, Sung-Woong Chung, Tae-Su Jang, Seung-Hwan, Lee, **Dong-Hee Son**, Seoung-Ju Chung, Sang-Min Hwang, Srinivasa Banna, Sunil Bhardwaj, Mayank Gupta, Jungtae Kwon, David Kim, Greg Popov, Venkatesh Gopinath, Michael Van Buskirk, Sang-Hoon Cho, Jae-Sung Roh, Sung-Joo Hong, Sung-Wook Park
VLSI Symp. Tech. Dig., 163 (2010)

PRESENTATIONS and CHAIRS (International)

"Soft tissue-interfacing bioelectronics"

Donghee Son (Invited, oral presentation)
2023 2023 Annual Meeting and International Conference of the KSPST, Seoul, Korea Dec. 2023.

"Soft Electronic Skin and Epineurium for Strain-Durable Bioelectronics"

Donghee Son (Invited, oral presentation)
2023 ICAE, Jeju, Korea, Oct. 2023.

"Medical/Bio-Integrated Optoelectronics"

Donghee Son (Track chair)
2023 IMID, Busan, Korea, Aug. 2023.

"Recent Advances in Organic Bioelectronics for Sensing Applications"

Donghee Son (Co-track chair)
2023 IEEE FLEPS, Boston, US, July. 2023.

"Nanomedicine"

Donghee Son (Session chair)
2023 NANO KOREA, Ilsan KINTEX, Korea, July. 2023.

"Soft Electronic Skin and Epineurium for Strain-Durable Bioelectronics"

Donghee Son (Invited, oral presentation)
2023 IEEE Nano, Jeju, Korea, July. 2023.

"Soft Electronic Skin and Epineurium for Strain-Durable Bioelectronics"

Donghee Son (Invited, oral presentation)
2023 GCIM (Global conference on Innovation Materials), Jeju, Korea, June. 2023.

"Stretchable Bioelectronic Devices for Epidermal, Retinal, and Neural Prostheses"

Donghee Son (Invited, oral presentation)

2023 MRS Spring Meeting & Exhibit, San Francisco, April 2023.

"Soft Electronic Skin and Epineurium for Strain-Durable Bioelectronics"

Donghee Son (Oral presentation)

2022 ENGE (The 7th International Conference), Jeju, Korea, Nov. 2022.

"Stretchable Self-Healing Materials and Devices for Chronic Peripheral Neural Interfaces"

Donghee Son (Oral presentation)

2021 IUMRS-ICA, Oct. 2021.

"Adaptive self-recoverable electronic epineurium"

Donghee Son (Oral presentation)

2021 Virtual MRS Spring Meeting & Exhibit, Online, April 2021.

"Beyond Stretchable Electronics: Self-Healing Electronics"

Donghee Son (Oral presentation)

Asia-Pacific Workshop on Biointerfaced Electronics, KAIST, Daejeon, Korea, November (2018).

"Non-volatile memory and integrated sensors for bioresorbable electronic stent"

Donghee Son, Jongha Lee, Dong Jun Lee, and Dae-Hyeong Kim (Oral presentation)

Materials Research Society (MRS) SPRING MEETING & EXHIBIT, Phoenix, USA, March 2016.

"Stretchable Inorganic Nanomembrane Electronics for Healthcare Devices"

Dae-Hyeong Kim, **Donghee Son**, Jaemin Kim

SPIE DSS, Baltimore, USA, April 2015.

"Large-Scale 'Linker-Free Assembly' of swCNT-Based Biosensor Arrays"

Donghee Sohn, Byung Yang Lee, and Seunghun Hong (Oral presentation)

American Physical Society (APS) SPRING MEETING SYMPOSIUM, Luisiana, USA, March 2008.