

# CURRICULUM VITAE

김태일 (Tae-il Kim Ph.D)

## PERSONAL INFORMATION

Name: Tae-il Kim  
Date of Birth: November 17, 1977  
Nationality: Republic of Korea  
Office address: 2066, Seoburo, Sungkyunkwan University (SKKU) Rm  
86363, Jangangu, Suwon, Korea  
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Marital status: Married



## EDUCATION

Doctor of Philosophy (March 2003 ~ February 2009)

School of Chemical and Biological Engineering, Seoul National University

Advisor: Prof. Hong H. Lee

Thesis: Facile Fabrication of Bio-Inspired Nanostructures and Their Application

Bachelor of Science (March 1997 ~ February 2003)

School of Chemical and Biological Engineering, Sungkyunkwan University (SKKU)

: Exc. Military service (February 1998 ~ March 2000)

## EXPERIENCE

2017. 3 - Associate Professor, School of Chemical Engineering, Sungkyunkwan University, Suwon, Korea  
2017. 3 - Adjunct Professor, Graduate School of Human ICT Convergence, Sungkyunkwan University, Suwon  
2015. 3 - Adjunct Professor, Department of Biomedical Engineering, Sungkyunkwan University, Suwon, Korea  
2013. 3 - 2017.2 Assistant Professor, School of Chemical Engineering, Sungkyunkwan University, Suwon, Korea  
2009. 6 - 2013.1 Postdoctoral Researcher, Material Science and Engineering, University of Illinois at Urbana-Champaign, USA (Advisor: prof. John A. Rogers)  
2009. 3 - 2009. 5 BK-21 Postdoctoral Researcher, School of Mechanical & Aerospace Engineering, Seoul National University, Korea (Advisor: prof. Kahp Y. Suh)

2003. 3 - 2003.8            Assistant Researcher, "Electron Beam Lithography (LION-LV1)"  
Inter-university Semiconductor Research Center (ISRC), Seoul National  
University, Korea

## **PROFESSIONAL ACTIVITIES and TEACHING EXPERIENCES**

2013.3- present            Assistant Professor, School of Chemical Engineering, Sungkyunkwan University  
(SKKU)

2003. 9 – 2004.2            Teaching Assistance, "Experiment of Biochemistry"  
School of Chemical Engineering, Seoul National University, KOREA

## **RESEARCH INTERESTS**

- Nanoscale patterning using unconventional lithography
- Wettability controls (unidirectional wetting and spreading)
- Bio-integrated Electronics; brain injectable devices for wireless optogenetics
- Flexible electronics formed by inorganic microscale devices; GaN LED, silicon transistor
- Biomimetics based on nanofabrication; dry adhesive, superhydrophobic surface, nanoscale velcro

## **Selected PUBLICATIONS** (\* corresponding author, # equal contribution)

### **Science**

- Byeonghak Park, J.H. Shin, J. Ok, S. Park, W. Jung, C. Jeong, S. Choy, Y.J. Jo, and **Tae-il Kim\***, "[Cuticular pad-inspired selective frequency damper for nearly dynamic noise-free bioelectronics](#)", *Science* 376, 6593, 624-620 (May 2022)

- **Tae-il Kim**<sup>†</sup>, J.G. McCall<sup>†</sup>, Y.H. Jung, X. Huang, E. R. Siuda, Y. Li, J. Song, Y.M. Song, H.A. Pao, R. -H. Kim, Lu, S. D. Lee, I.-S. Song, G.C. Shin, R. Al-Hassani, S. Kim, M.P. Tan, Y. Huang, F.G. Omenetto, John.A. Rogers, M.R. Bruchas, "[Injectable cellular scale optoelectronics with applications for wireless optogenetics](#)" *Science* 340, 211-216 (Apr 2013)

### **nature**

- D. Kang, P.V. Pikhitsa, Y.W. Choi, C. Lee, S.S. Shin, L. Piao, B. Park, K.-Y. Suh, **Tae-il Kim\***, M. Choi, "[Ultrasensitive mechanical crack-based sensor inspired by the spider sensory system](#)" *Nature* 516, 222-226 (Dec 2014)

- Ki Yoon Kwon<sup>†</sup>, S. Cheeseman<sup>†</sup>, A. Frias-De-Diego, H. Hong, J. Yang, W. Jung, H. Yin, B.J. Murdoch, F. Scholle, N. Crook, E. Crisci, M.D. Dickey\*, V.K. Truong\*, and **Tae-il Kim\***, "A liquid metal mediated-metal coating for antimicrobial and antiviral fabrics", *Adv. Mater.* 33 (45), 2104298 (Nov 2021) [impact factor 30.849] [[Link](#)]

- Ju Seung Lee, S.J. Kang, J.H. Shin, Y.J. Shin, B. Lee, J.-M. Koo, and **Tae-il Kim\*** "Nanoscale dewetting based direct interconnection of microelectronics for a deterministic assembly of transfer printing" *Adv. Mater.* 32 (21) 1908422 (May 2020) [impact factor 25.809] highlighted as a coverart [[Link](#)]

- Yei Hwan Jung, J.U. Kim, J.S. Lee, J.H. Shin, W. Jung, J. Ok, and **Tae-il Kim\***, "Injectable biomedical electronics for sensing and stimulating internal body organs" *Adv. Mater.* 32 (16) 1907478 (Apr 2020) [impact factor 25.809] highlighted as a frontispiece\_ [[Link](#)]

-Chanho Jeong, J.S. Lee, B. Park, C.S. Hong, J.U. Kim and **Tae-il Kim\***, "Controllable Configuration of Sensing Band in a Pressure-Sensor by Lenticular Pattern Deformation on Designated Electrodes", *Adv. Mater.* 31,(36), 1902689 (Sep 2019) [impact factor 25.809] [[Link](#)]

-Sung Hyuk Sunwoo, J.S. Lee, S.J. Bae, Y.J. Shin, C.S. Kim, S.Y. Ju, H.S. Choi, M. Suh, S.W. Kim, Y.J. Choi, and **Tae-il Kim\***, "Chronic and acute stress monitoring by electrophysiological signal from adrenal gland" *Proc. Natl. Acad. Sci. USA* 116 (4) 1146-1151 (Jan 2019) [impact factor 9.661]

-Yei Hwan Jung, B. Park, J.U. Kim, and **Tae-il Kim\***, "Bioinspired Electronics for artificial sensory systems" *Adv. Mater.* 31 (34) 183637 (Aug 2019) [impact factor 25.809]

-Sori Lee†, G. Hwang†, T.H. Kim†, S.J. Kwon, J.U. Kim, K. Koh, B. Park, H. Hong, K.J. Yu, H. Chae, Y. Jung\*, J. Lee\*, and **Tae-il Kim\***, "On-demand drug release from gold nanoturf for a thermo- and chemotherapeutic esophageal stent (TES)" *ACS Nano*. 12 (7), 6756-6766 (Jul 2018) [impact factor 13.709][[Link](#)]

- B.H. Park†, J.S. Kim†, D. Kang, C. Jeong, K. Kim, J.U. Kim, P.J. Yoo, and **Tae-il Kim\***, "[Dramatically Enhanced Mechanosensitivity and Signal-to-Noise-Ratio on Nanoscale Crack based Sensors: Effect of Depth](#)" *Adv. Mater.* 28 (37) 8130-8137 (Oct 2016) [impact factor 18.90]

- **Tae-il Kim**, H. E. Jeong, K. Y. Suh, and H. H. Lee "[Stooped Nanohairs: Geometry controllable, reversible, unidirectional and robust gecko-like dry adhesive](#)" *Adv. Mater.* 21 (22) 2276-2281 (Jun 12 2009) [selected as a [inside cover](#)] [impact factor 10.857]

#### **Full PUBLICATIONS** (\* corresponding author, # equal contribution)

119. Woojin Jung, G.R. Koirala, J.S. Lee, J.U. Kim, H. Hong, B. Park, Y.J. Jo, C. Jeong, K. Kwon, Y.-s. Ye, J. Kim, K. Lee, and **Tae-il Kim\***, "Solvent-Assisted Filling of Liquid Metal by Selective Dewetting for the Multilayered 3D Interconnect in Stretchable Electronics" *ACS Nano* accepted\_LED, [impact factor 18.027, **JCR 5%**] [[Link](#)]

118. J. Choi†, I.S. Lee†, Ju Seung Lee†, S. Jeon, W.S. Yun, S. Yang, Y. Moon, J. Kim, J. Kim, S. Choy, C. Jeong, M.K. Shim\*, **Tae-il Kim\***, and K.M. Kim\*, "Implantable micro-scale LED device guided photodynamic therapy to potentiate antitumor immunity with mild visible light", *Biomaterials Res.* 26, 56 (Oct 2022) [impact factor 15.863, **JCR 3%**][[Link](#)]

117. K.H. Kwon†, Jong Uk Kim†, S.M. Won†, J. Zhao, H. Wang, R. Avila, K.S. Chun, H. Jang, K.H. Lee, J.-H. Kim, J. Kim, J. Lim, Y. Park, W. Lu, **Tae-il Kim**, A. Banks, Y. Huang, and J.A. Rogers\*, "Battery-free, cardiovascular implant for wireless monitoring of arterial/ventricular pressure, flow rate and temperature in real-time fashion", *Nat. Biomed. Eng.* accepted [impact factor 29.234, **JCR 2%**]

116. Chanho Jeong, G.R. Koirala, Y.H. Jung, Y.S. Ye, J.H. Hyun, T.H. Kim, B. Park, J. Ok, Y. Jung, and **Tae-il Kim\***, "Motion Artifact-Resilient Zone for Implantable Sensors", *Adv. Funct. Mater.* 32 (46) 2206461 (Nov 2022) [impact factor 19.92, **JCR 5%**][[Link](#)]

115. J. Bang, J. Ahn, J. Zhang, T.H. Ko, B. Park, Y.M Lee, B.K. Jung, S.Y. Lee, J. Ok, B.H. Kim, **Tae-il Kim**, J.-I. Choi\*, C.H. Lee\*, and S.J. Oh\*, "Stretchable and Directly Patternable Double-Layer Structure Electrodes with Complete Coverage" *ACS Nano* 16, 8, 12134–12144 (Aug 2022) [impact factor 18.027, **JCR 5%**][[Link](#)]

114. C. So†, Jong Uk Kim†, H. Luan, S.u. Park, H. Kim, S. Han, D.Y. Kim, C. Shin, **Tae-il Kim**, W.H. Lee, Y. Park, K. Heo, H.W. Baac\*, J.H. Ko\*, S.M. Won\*, "Epidermal piezoresistive structure with deep learning-assisted data translation" *npj Flex. Electron.* 6, 77 (Aug 2022) [impact factor 12.019, **JCR 2%**] [[Link](#)]

113. Ju Seung Lee, J. Kim, Y.S. Ye, and **Tae-il Kim\***, "Materials and Device Design for Advanced Phototherapy Systems ", *Adv. Drug Deliv. Rev.* 186, 114339 (July 2022) [impact factor 17.873, **JCR 2%**] [[Link](#)]

112. Y.H. Jung†, J.-Y. Yoo†, A. Vazquez-Cuadrado†, J.-H. Kim†, J.-T. Kim†, H. Lian, M. Park, J. Lim, H.-S. Shin, C.-J. Su, R. Schloen, J. Trueb, R. Avila, J.-K. Chang, D.S. Yang, Y. Park, H. Ryu, H.-J. Yoon, C. Lee, H. Jeong, J.U. Kim, Tae-il Kim, Y. Huang, and J.A. Rogers\*, "A wireless haptic interface for programmable patterns of touch across large areas of the skin", *Nat. Electron.* 5, 374-385 (May 2022) [impact factor 33.255, JCR 2%][[Link](#)]

111. S. Lee, J. Park, S. Kim, J. Ok, J.I. Yoo, Y.S. Kim, Y. Ahn, Tae-il Kim, H.C. Ko, and J.Y. Lee\*, "High-performance implantable bioelectrodes with immunocompatible topography for modulation of macrophage responses", *ACS Nano*.16, 5, 7471–7485 (May 2022) [impact factor 18.027, JCR 5%] [[Link](#)]

110. Byeonghak Park, J.H. Shin, J. Ok, S. Park, W. Jung, C. Jeong, S. Choy, Y.J. Jo, and Tae-il Kim\*, "Cuticular pad–inspired selective frequency damper for nearly dynamic noise–free bioelectronics", *Science* 376, 6593, 624-629 (May 2022) [impact factor 63.789, JCR 2%] [[Link](#)]



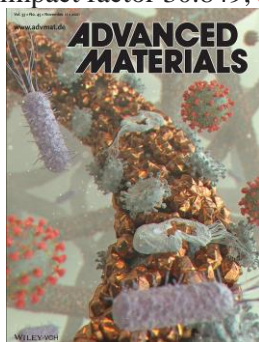
109. Youngjin Jo†, Soo Young Kim†, J.H. Hyun, B. Park, S. Choy, G.R. Koirala, and Tae-il Kim\*, "Fibrillary gelation and dedoping of PEDOT:PSS fibers for interdigitated organic electrochemical transistors and circuits", *npj Flex. Electron.* 6, 31 (May 2022) [impact factor 13.020, JCR 2%] [[Link](#)]

108. Jong Uk Kim†, H. Park†, J. Ok, J. Lee, W. Jung, J. Kim, J. Kim, M. Suh\*, Tae-il Kim\*, "Cerebrospinal Fluid (CSF)-philic, Biocompatibility-Enhanced Soft Cranial Window for Long Term in vivo Brain Imaging", *ACS Appl. Mater. Interf.* 14, 13, 15035-15046 (Apr 2022)[impact factor 9.229][[Link](#)]

107. Ju Hwan Shin, J.M. Kwon, J.U. Kim, H. Ryu, J. Ok, S.J. Kwon, H Park, and Tae-il Kim\*, "Wearable EEG electronics for a Brain–AI Closed-Loop System to enhance autonomous machine decision-making", *npj Flex. Electron.* 6, 32 (May 2022) [impact factor 13.020, JCR 2%][[Link](#)]

106. J. Yang†, Ki Yoon Kwon†, S. Kanetkar†, R. Xing, P. Nithyanandam, Y. Li, W. Jung, W.Gong, M. Tuman, Q. Shen, M. Wang, T. Ghosh, K. Chatterjee, D. Zhang, Tae-il Kim, V.K. Truong\*, and M.D. Dickey\*, "Skin-inspired Capacitive Stress Sensor with Large Dynamic Range via Bilayer Liquid Metal Elastomers", *Adv. Mater. Technol.* 7 (5) 2101074 (May 2022) [impact factor 5.969] [[Link](#)]

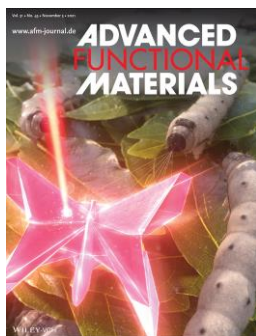
105. Ki Yoon Kwon†, S. Cheeseman†, A. Frias-De-Diego, H. Hong, J. Yang, W. Jung, H. Yin, B.J. Murdoch, F. Scholle, N. Crook, E. Crisci, M.D. Dickey\*, V.K. Truong\*, and Tae-il Kim\*, "A liquid metal mediated-metal coating for antimicrobial and antiviral fabrics", *Adv. Mater.* 33 (45), 2104298 (Nov 2021) [impact factor 30.849, JCR 2%][[Link](#)]



104. Hyewon Ryu, H. Choi, J.H. Shin, H. Hong, B. Park, E.G. Lee, and **Tae-il Kim\***, "Non-Yellowish and Heat-Resistant Adhesive for a Transparent Heat Sinking Film", *J. Ind. Eng. Chem.* 103, 275-282 (Nov 2021) [impact factor 6.064] [[Link](#)]

103. V. Vallen, E. Roosa, T. Ledinh, W. Jung, **Tae-il Kim**, S. Rashid-Nadimi, A. Kiani, and M.D. Dickey\*, "A Soft Variable-Area Electrical-Double-Layer Energy Harvester", *Adv. Mater.* 33 (43), 2103142 (Oct 2021) [impact factor 30.849, JCR 2%] [[Link](#)]

102. I.B. Dogru-Yuksel†, Chanho Jeong†, B. Park, J.S. Lee, F. Oz, **Tae-il Kim\***, and S. Nizamoglu\* "Silk fibroin nanocracks facilitate directional random lasers", *Adv. Funct. Mater.* 31 (45) 2104914 (Nov 2021), Front cover [impact factor 18.808, JCR 5%] [[Link](#)]



101. T. Park, H.K. Woo, B. Park, B.K. Jung, J. Bang, W. Kim, S. Jeon, J. Ahn, Y. Lee, **Tae-il Kim**, and S.J. Oh\*, "Non-Interference Wearable Strain Sensor: Near-Zero Temperature Coefficient of Resistance Nanoparticle Arrays with Thermal Expansion and Transport Engineering", *ACS Nano* 15, 8120-8129 (May 2021) [impact factor 14.588, JCR 5%] [[Link](#)]

100. Byeonghak Park, Y. Lee, W. Jung, D.K. Scott, D. Aalto, H.-J. Chung, and **Tae-il Kim\***, "Deterministically Assigned Directional Sensing of Nanoscale Crack based Pressure Sensor by Anisotropic Poisson Ratios of the Substrate" *J. Mater. Chem. C* 9, 5154-5161 (Apr 2021) [impact factor 7.059] [[Link](#)]

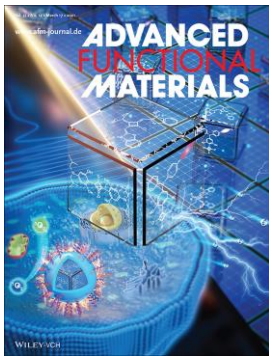
99. K.H. Kwon†, Jong Uk Kim†, Y. Deng†, S.R. Krishnan, J. Choi, H. Jang, K.H. Lee, C.-J. Su, I. Yoo, Y. Wu, L. Lipschultz, J.-H. Kim, T.S. Chung, D. Wu, Y. Park, **Tae-il Kim**, R. Ghaffari, S. Lee, Y. Huang, and J.A. Rogers\*. "An on-skin platform for wireless monitoring of flow rate, cumulative loss and temperature of sweat in real time" *Nat. Electron.* 4, 302-312 (May 2021) [impact factor 27.50, JCR 2%] [[Link](#)]

98. Young Jin Jo, J. Ok, S.Y. Kim, and **Tae-il Kim\***, "Stretchable and Soft Organic-Ionic Devices for Body-Integrated Electronic Systems" *Adv. Mater. Technol.* 7 (2), 200123 (Feb 2022) invited [impact factor 5.969] [[Link](#)]

97. Seung Ji Kang, H. Hong, C. Jeong, J.S. Lee, H. Ryu, J. Yang, J.U. Kim, Y.J. Shin, and **Tae-il Kim\***, "Avoiding Heating Interference and Guided Thermal Conduction in Stretchable Devices using Thermal Conductive Composite Islands", *Nano Res.* 14 (9), 3253-3259 (Sep 2021)\_invited paper [impact factor 8.183] [[Link](#)]

96. Woojin Jung, C. Heo, J.U. Kim, C. Jeong, H. Ryu, B. Park, M. Suh, and **Tae-il Kim\***, "Design and Material for a Patternable Polysiloxane Acrylate based Penetrating Intracortical Neural Probe", *J. Micromech. Microeng.* 31, 034002 (Mar 2021) invited paper [impact factor 1.739] [[Link](#)]

95. J. He†, Youngjin Jo†, X. Sun, W. Qiao, J. Ok, **Tae-il Kim\***, and Z. Li\*, "Squaraine Dyes for Photovoltaic and Biomedical Applications", *Adv. Funct. Mater.* 31 (12) 2008201 (Mar 2021) Inside front cover, invited paper [impact factor 16.836, JCR 5%] [[Link](#)]



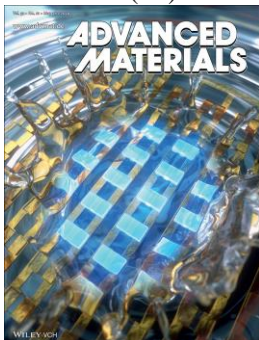
94. Kiyeon Kwon, V.K. Truong, F. Krisnadi, S. Im, J. Ma, N. Mehrabian, **Tae-il Kim\***, and M. Dickey\*, "Surface modification of gallium based liquid metal: from mechanism to applications in biomedical sensors and soft actuators", *Adv. Intell. Syst.* 3 (3) 2000159 (Mar 2021)\_invited\_special issue in soft bionic sensors and actuators [impact factor TBD] [[Link](#)]

93. Y. Sun, D. Li, J.U. Kim, B. Li, S-H. Cho, **Tae-il Kim**, J-D. Nam, L. Ci, J. Suhr\*, "Carbon Aerogel Reinforced Polydimethylsiloxane with Tailored Microstructures for Multifunctional Wearable Device", *Carbon* 171, 758-767 (Jan 2021) [impact factor 8.821] [[Link](#)]

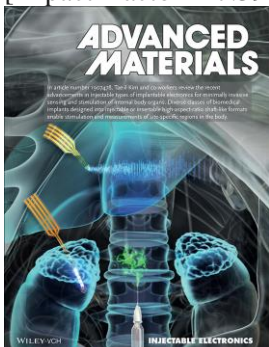
92. Jong Uk Kim, S.J. Kang, S. Lee, J. Ok, Y.J. Kim, S.H. Roh, H. Hong, J.K. Kim, H. Chae, S. J. Kwon\*, **Tae-il Kim\***, "Omnidirectional, broadband light absorption in a hierarchical nanoturf membrane for an advanced solar-vapor generator", *Adv. Funct. Mater.* 30 (50) 2003862 (Dec 2020) [impact factor 16.836, JCR 5%] [[Link](#)]

91. H. Lim, B. Park, S.-J. Choi, S. Beak, and **Tae-il Kim\*** "Optically Tunable Bifunctional Structures Fabricated by Hybrid Imprint-photo Lithography (HIPL)" *Adv. Mater. Technol.* 5 (7) 2000095 (July 2020) [impact factor 5.395] [[Link](#)]

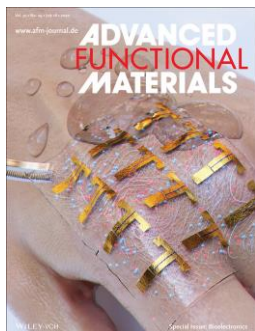
90. Ju Seung Lee, S.J. Kang, J.H. Shin, Y.J. Shin, B. Lee, J.-M. Koo, and **Tae-il Kim\*** "Nanoscale dewetting based direct interconnection of microelectronics for a deterministic assembly of transfer printing" *Adv. Mater.* 32 (21) 1908422 (May 2020) [impact factor 27.398, JCR 2%] Front cover, press released [[Link](#)]



89. Yei Hwan Jung, J.U. Kim, J.S. Lee, J.H. Shin, W. Jung, J. Ok, and **Tae-il Kim\***, "Injectable biomedical electronics for sensing and stimulating internal body organs" *Adv. Mater.* 32 (16) 1907478 (Apr 2020) [impact factor 27.398, JCR 2%] highlighted as a frontispiece, press released in [Nanowerk](#) [[Link](#)]



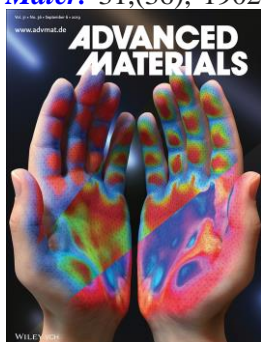
88. Young Jin Jo<sup>†</sup>, Hyen Kim<sup>†</sup>, J. Ok, Y.-J. Shin, J.H Shin, T.H. Kim, Y. Jung and **Tae-il Kim**<sup>\*</sup>, "Biocompatible and Biodegradable Organic Transistors using a Solid-State Electrolyte incorporated with Choline based Ionic Liquid and Polysaccharide" *Adv. Funct. Mater.* 30 (29, Special issue: Bioelectronics) 1909707 (July 2020) [impact factor 16.836, JCR 5%] Front cover\_[\[Link\]](#)



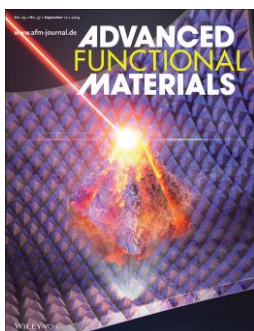
87. J. Kim, D.W. Kim, S. Baik, **Tae-il Kim**<sup>\*</sup>, C. Pang<sup>\*</sup>, "Snail-inspired dry adhesive with embedded microstructures for enhancement of energy dissipation", *Adv. Mater. Technol.* 4 (11) 1900316 (Nov 2019) [impact factor 5.395] [\[Link\]](#)

86. Byeonghak Park, J.U. Kim, J. Kim, D. Tahk, C. Jeong, J. Ok, J. Shin, D. Kang, **Tae-il Kim**<sup>\*</sup> "Strain-Visualization with Ultrasensitive Nanoscale Crack-based Sensor Assembled with Hierarchical Thermochromic Membrane" *Adv. Funct. Mater.* 29 (40) 1903360 (Oct 2019) [impact factor 15.621, JCR 5%]\_[\[Link\]](#)

85. Chanho Jeong, J.S. Lee, B. Park, C.S. Hong, J.U. Kim and **Tae-il Kim**<sup>\*</sup>, "Controllable Configuration of Sensing Band in a Pressure-Sensor by Lenticular Pattern Deformation on Designated Electrodes", *Adv. Mater.* 31,(36), 1902689 (Sep 2019) [impact factor 25.809, JCR 2%] highlighted as a front cover\_[\[Link\]](#)

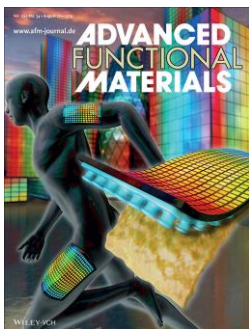


84. Haeleen Hong, Y.H. Jung, J.S. Lee, C. Jeong, J.U. Kim, S. Lee, H. Ryu, H. Kim, and **Tae-il Kim**<sup>\*</sup>, "Anisotropic thermal conductive composite by guided assembly of boron nitride nanosheets for flexible and stretchable electronics", *Adv. Funct. Mater.* 29 (37) 1902575 (Sep 2019) [impact factor 15.621, JCR 5%]\_highlighted as a front cover, press released [\[Link\]](#)



83. J. Bang, W.S. Lee, B. Park, H. Joh, H.K. Woo, S. Jeon, J. Ahn, C. Jeong, **Tae-il Kim**<sup>\*</sup>, and S.J. Oh<sup>\*</sup> "Highly Sensitive Temperature Sensor: Ligand-treated Ag Nanocrystal thin films on PDMS with Thermal Expansion Strategy" *Adv. Funct. Mater.* 29 (32) 1903047 (Aug 2019) [impact factor 15.621, JCR 5%][\[Link\]](#)

82. H. Yi, S.-H. Lee, H. Ko, D. Lee, W.-G. Bae, **Tae-il Kim**, D.S. Hwang, and H.E. Jeong\*, "Ultra-Adaptable and Wearable Photonic Skin Based on a Shape-Memory and Responsive Cellulose Derivative" *Adv. Funct. Mater.* 29 (34) 1902720 (Aug 2019) [impact factor 15.621, JCR 5%][[Link](#)]

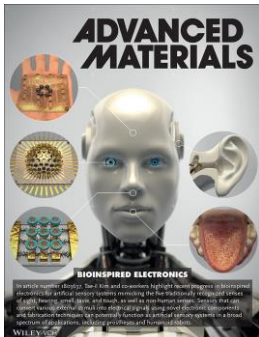


81. **Kiyoong Kwon**†, **Yiel Jae Shin**†, **J.H. Shin**, **C. Jeong**, **Y.H. Jung**, **B. Park** and **Tae-il Kim**\* "Stretchable, Patch-type calorie-expenditure measurement device based on pop-up shaped nanoscale-crack based sensor", *Adv. Healthc. Mater.* 8 (19) 1801593 (Oct 2019) [impact factor 6.270] [[Link](#)]

80. **Woojin Jung**, G.G. Jeon, **J.U. Kim**, **Tae-il Kim**\* and J.H. Kim\*, "Fabrication of randomly stooped polymer nanohairs by scattered electron flood" *Macromol. Res.* 27 (8) 739-742 (Aug 2019) [impact factor 1.767]\_[Link](#)

79. **Hyeon Soo Cho**, J.I. Lee, S. Park, H.-E. Song, D.-Y. Shin, **Tae-il Kim**, M.G. Kang\*, "Photovoltaic modules using a galinstan paste interconnection" *J. Korean Phys. Soc.* 74 (12) 1184-1189 (Jun 2019) [impact factor 0.630] [[Link](#)]

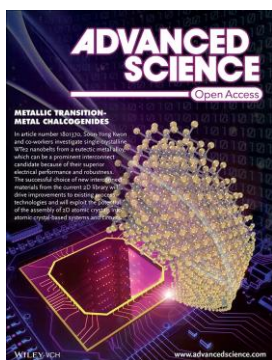
78. **Yei Hwan Jung**, **B. Park**, **J.U. Kim**, and **Tae-il Kim**\*, "Bioinspired Electronics for artificial sensory systems" *Adv. Mater.* 31 (34) 183637 (Aug 2019)\_invited paper [impact factor 25.809, JCR 2%] [[Link](#)]



77. **Yei Hwan Jung**, H. Zhang, I.-K. Lee, **J. Shin**, **Tae-il Kim**, and Z. Ma\* "Releasable high-performance GaAs Schottky diodes for gigahertz operation of flexible bridge rectifier", *Adv. Electro. Mater.* 5 (2), 100772 (Feb 2019) [impact factor 6.312][[Link](#)]

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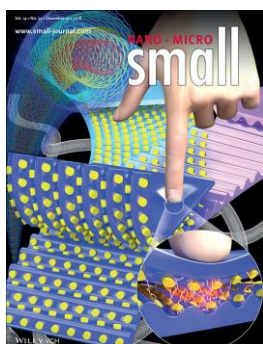
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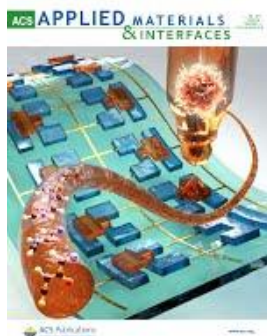


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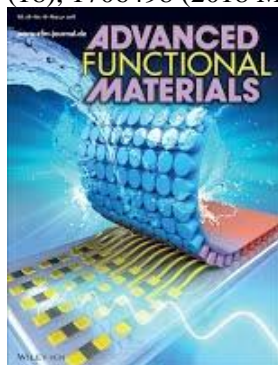
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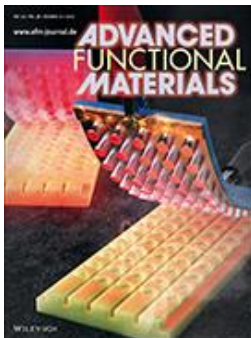
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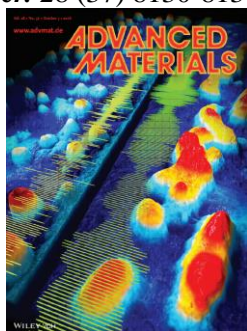
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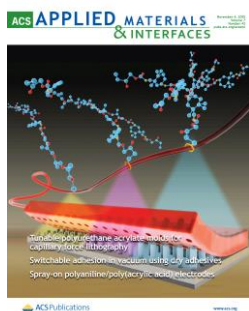
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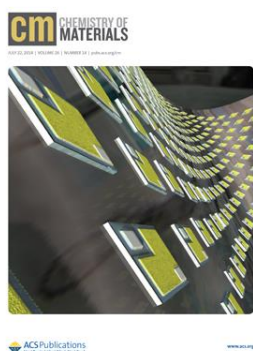
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뇌 삽입 전자소자로  
알츠하이머-간질 치료  
성공관대 김태일 교수팀 개발

국내 연구진이 알츠하이머, 간질 등의 치료에 사용할 수 있는 뇌 삽입형 전자소자를 개발했다. 성공관대는 김태일 (왼쪽)과 교수 (사진) 연구팀이 뇌 신경질환 치료에 사용할 수 있는 삽입형 다기능 전자소자를 개발했다고 20일 발표했다. 연구팀은 기존 광유전학에 비해 용해성 광성유를 전자소자로 대

체할 수 있는 방법을 제시했다. 마이크로 무게의 광전자소자를 만들어 뇌 삽입시 손상을 최소화하면서도 특정 부위에 빛으로 자극을 줘 치료에 활용하는 방식이다. 또 전자소자에 대한 제조 프로토콜을 제시해 앞으로 더

병 치료에 사용할 것으로 기대하고 있다. 김 교수는 마이크로 광소자를 사용해 동물의 행동을 변화시키는 광유전학 논문을 '사이언스(Science)' 4월호에 게재하기도 했다. 김 교수는 "전자소자의 유연성/가벼움 덕분에 삽입할 수 있는 가능성이 높았다고 생각한다"고 설명했다. 연구팀은 이 기술을 알츠하이머



병과 간질 등 뇌와 신경의 난치

김태일 기자 taeh@hankyung.com

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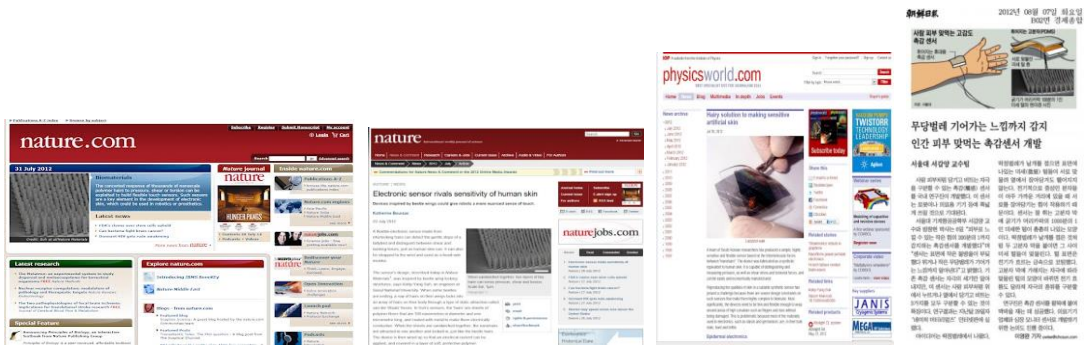
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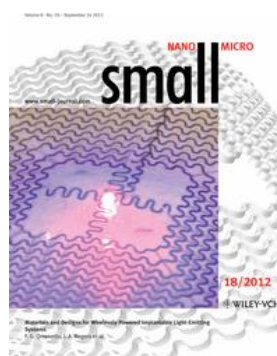
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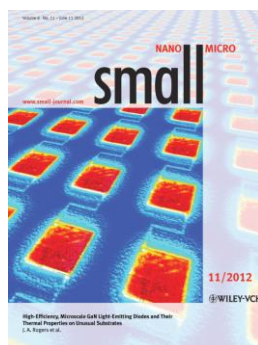
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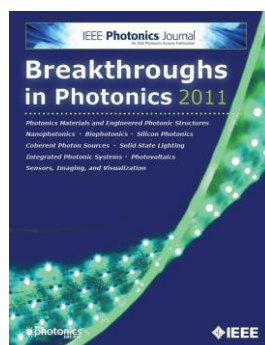


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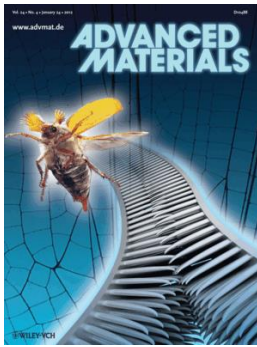
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### Lab on a Chip

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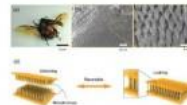
[www.rsc.org/loc](http://www.rsc.org/loc)

### HIGHLIGHT

## Research highlights

Seila Selimovic,<sup>ab</sup> Mehmet R. Dokmeci<sup>cd</sup> and Ali Khademhosseini<sup>abcd</sup>

DOI: 10.1039/c2lc90033e



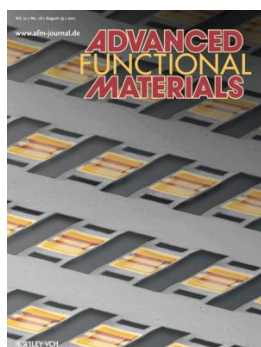
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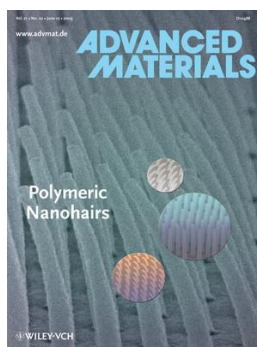


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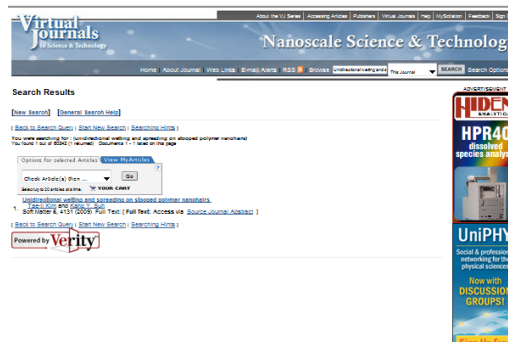
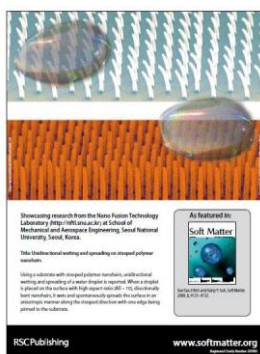
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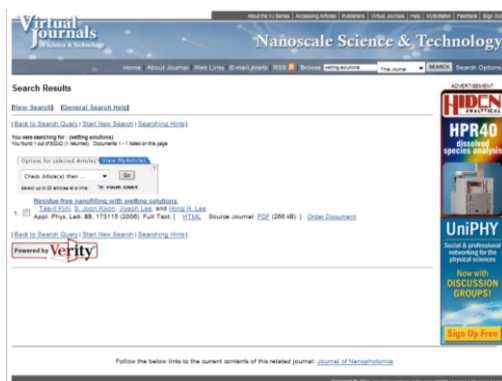


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