CURRICULUM VITAE

김태일 (Tae-il Kim Ph.D)

PERSONAL INFORMATION

Name: Tae-il Kim

Date of Birth: November 17, 1977

Nationality: Republic of Korea

Current address: 2066, Seoburo, Sungkyunkwan University (SKKU) Rm 25417A, 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

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 EXPERIECNCES

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

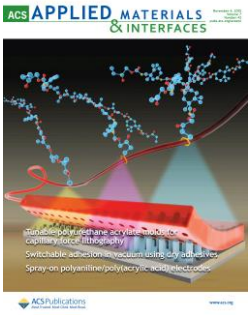
- Microscale, Flexible GaN LED(Light-Emitting Diode) and its biomedical approaches
- High performance, Fully formed Si transistor on foreign substrate
- Nanofabrication and nanopatterning
  (nanoimprint lithography, soft-lithography, nanotransfer printing, rigiflex lithography, thin film transfer (organic thin film and metal thin film), etc.)
- Application of unconventional patterning techniques to organic/inorganic devices (Bulk heterojunction polymeric solar cell, light emitting diodes, organic thin film field effect transistors), optics (wire-grid-polarizer), photonics (surface plasmon resonance), etc.
- Biomimetic nanostructures (Dry adhesive, superhydrophobic surface, Nano-Velcro).
- Polymeric thin film physics (interface/ surface analysis, and dewetting phenomena)
- Wettability controls (unidirectional wetting and spreading)

PUBLICATIONS (* corresponding author, # equal contribution)

52. S.I. Park, D.S. Brenner, G. Shin, D.D. Morgan, B.A. Copits, H.U. Chung, M.Y. Pullen, K.N. Noh, S. Davidson, S.J. Oh, J. Yoon, K.-I. Jang, V.K. Samineni, M. Norman, J.G. Grajles-Reyes, S.K. Vogt, S.S. Sundaram, J.S. Ha, R. Xu, T. Pan, **Tae-il Kim,** Y. Huang, M.C. Montana, J.P. Golden, M.R. Bruchas, R.W. Gereau, and J.A. Rogers "Fully Implantable, soft, optoelectronics systems for wireless optogenetics" ***Nat. Biotechnol.*** 33, 1280-1286 (Dec 2015) [impact factor 41.514]

51. H. Jang, D.J. Kim, H. Tak, J. Nam, **Tae-il Kim*** "Ultra-Robust and Transparent Conductive Electrodes using Transferred Grid of Ag Nanowires on Flexible Substrate" ***Curr. Appl. Phys.*** 16 (1) 24-30 (Jan 2016)[impact factor 2.026]

50. D. Suh, H Tak, S-J. Choi, **Tae-il Kim*** "Permeability- and surface energy tunable polyurethane acrylate molds for capillary force lithography" ***ACS Appl. Mater. Inter.*** 7 (43) 23824-23830 (Nov 2015) [impact factor 6.723][Selected as front cover]



49. S. Lee, S. Lee, T.H. Kim, M. Cho, J.B. Yoo, **Tae-il Kim***, Y. Lee, "Geometry controllable graphene layers and their application for supercapacitors" ***ACS Appl. Mater. Inter.***, 7 (15) 8070-8075 (April 2015) [impact factor 6.723]

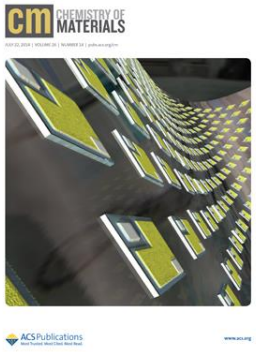
48. H.S. Im, K.Y. Kwon, J.U. Kim, K.S. Kim, H. Yi, P.J. Yoo, C. Pang, H.E. Jeong, **Tae-il Kim***, "Highly durable and unidirectionally stooped polymeric nanohairs for gecko-like dry adhesive" ***Nanotechnology*** 26 (41), 415301 (Oct 2015) [impact factor 3.821]

47. S.H. Jin, S.-K. Kang, I.-T. Cho, H.U. Chung, D.J. Lee, H.M. Shin, G.W. Beak, **Tae-il Kim**, J. Lee, J.A. Rogers, "Water soluble thin film transistors and circuits based on amorphous indium-gallium-zinc-oxide" ***ACS Appl. Mater. Inter.*** 7 (15) 8268-8274 (April 2015) [impact factor 6.723]

46. S. Baik, N. Kim, **Tae-il Kim**, H. Chae, K.H. Kim, K.-Y. Suh, C. Pang, "Theoretical analysis of flexible strain-gauge sensor with nanofibrillar mechanical interlocking" ***Curr. Appl. Phys.*** 15, 274-278 (Jan 2015) [impact factor 2.026]

45. Daesik Kang, Peter V. Pikhitsa, Y.W. Choi, C. Lee, S.S. Shin, L. Piao, B. Park, K.-Y. Suh, **Tae-il Kim*** M. Choi, "Ultra-mechanosensitive spider-inspired nanoscale crack sensor" ***Nature*** 516, 222-226 (Dec 2014) [impact factor 42.351] [featured on hundreds scientific news, Nature, The New York Times, MIT technology reviews, *Science, Cell* etc], [press released in YTN, KBS, MBC, etc.]

44. **Tae-il Kim***, Mo Joon Kim, Yei Hwan Jung, Hyejin Jang, Canan Dagdeviren, Hsuan An Pao, Sang June Cho, Andrew Carlson, Ki Jun Yu, Abid Ameen, Hyun-joong Chung, Sung Hun Jin, Zhenqiang Ma, and John A. Rogers, "Thin film receiver materials for deterministic assembly of transfer printing" ***Chem Mater*** 26(11), 3502-3507 (May 2014)[impact factor 8.238][Selected as front cover]



43. Sunghun Jin, Jizhou Song, Ha Uk Chung, Chenxi Zhang, Simon N. Dunham, Xu Xie, Frank Du, **Tae-il Kim**, Jong-Ho Lee, Yonggang Huang, John A Rogers "Fundamental Effects in Nanoscale Thermocapillary Flow" ***J Appl Phys*** 115, 054315 (Feb 2014) [impact factor 2.168]

42. **Tae-il Kim** , Soo Hyun Lee , Yuhang Li , Yan Shi , Gunchul Shin , Sung Dan Lee , Yonggang Huang, John A Rogers, Jae Su Yu, "Temperature- and Size-Dependent Characteristics in Ultrathin Inorganic Light-Emitting Diodess Assembled by Transfer Printing" ***Appl Phys Lett*** 104, 015901 (Feb 2014) [impact factor 3.726]

41. **Jordan McCall[#], Tae-il Kim[#], Gunchul Shin[#]**, Xian Huang, Yei Hwan Jung, Fiorenzo G. Omenetto, Micheal R Bruchas, John A. Rogers, "Fabrication of flexible, multimodal light emitting devices for wireless optogenetics" ***Nature Protoc*** 8, 2413 (Dec 2013) [selected as a front cover] [press released][impact factor 7.69]

40. Gayoung Park, Hyun-Joong Chung, Kwanghee Kim, Seon Ah Lim, Jiyoung Kim, Yun-Soung Kim, Yuhao Liu, Woon-Hong Yeo, Rak-Hwan Kim, Stanley S. Kim, Jong-Seon Kim, Yei Hwan Jung, **Tae-il Kim**, Vinay Kumar, Cassian Yee, John A. Rogers, and Kyung-Mi Lee, "Immunologic and tissue biocompatibility of flexible/stretchable electronics and optoelectronics" ***Adv Healthc Mater*** 3 (4) 515-525 (Apr 2014)

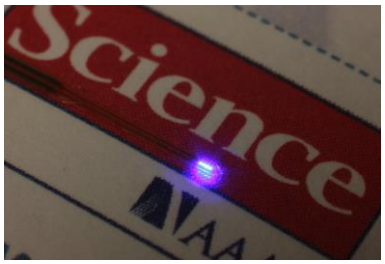
39. Yuhang Li, Xiaoting Shi, Jizhou Song, Chaofeng Lu, **Tae-il Kim**, Jordan G. McCall, Michael R. Bruchas, John A. Rogers, and Yonggang Huang, "Thermal Analysis of Injectable, Cellular-Scale Optoelectronics with Pulsed Power", ***Proc. R. Soc. A.*** 469, 20130142 (Jun 2013) [impact factor 1.971]

38. **Tae-il Kim**, Y H Jung, H-J Chung, K J Yu, N Ahmed, C Corcoran, J S Park, S H Jin and John A. Rogers, "Deterministic Assembly of Releasable Single Crystal Silicon-Metal Oxide Field Effect Devices Formed From Bulk Wafers" ***Appl Phys Lett*** 102, 182104 (March 2013)

37. Y. Li, Y. Shi, J. Song, C. Lu, **Tae-il Kim,** John A. Rogers, Y. Huang, "Thermal properties of microscale inorganic light emitting diodes in a pulsed operation" ***J. Appl Phys*** 113, 144505 (Apr 2013)

36. S.-W. Hwang, D.-H. Kim, H. Tao, **Tae-il Kim,** Stanley Kim, Ki Jun Yu, Bruce Panilaitis, J.-W. Jeong, F. G. Omenetto and John A Rogers, "Materials and process for high performance transient, bioresorbable electronics", ***Adv Func Mater*** 23, 4087 (Sep 2013)

35. **Tae-il Kim[#],** Jordan McCall[#], Yei Hwan Jung, Xian Huang, Sean Pao, Rak Hwan Kim, Yuhang Li, Chaoflu Lu, Il Sun Song, Stanley Kim, Suk Won Hwang, Meng Peun Tan, Yonggang Huang, Micheal Bruchas and John A Rogers, "Multifunctional, wireless powered microscale LEDs for Optogenetics", submitted. ***Science*** 340, 211-216 (Apr 2013) [featured on hundreds scientific news, MIT technology reviews, *Science*, *Nat. Mater. Cell* etc], [press released in YTN, KBS, etc.] [impact factor 32.841]

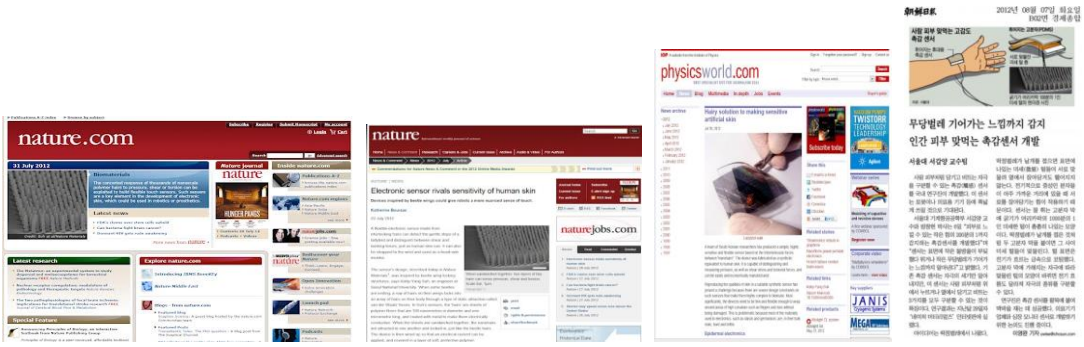


34. Sheng Xu, Yihui Zhang, Jiung Cho, Juhwan Lee, Xian Huang, Lin Jia, Jonathan A. Fan, Yewang Su, Jessica Su, Huigang Zhang, Huanyu Cheng, Bingwei Lu, Cunjiang Yu, Chi Chuang, **Tae-il Kim**, Taeseup Song, Kazuyo Shigeta, Sen Kang, Canan Dagdeviren, Ivan Petrove, Paul V. Braun, Yonggang Huang, Ungyu Paik, and John A. Rogers, "Stretchable batteries with self-similar serpentine interconnects and integrated wireless recharging system" ***Nat Commun.*** 4, 1543 (Feb 2013)

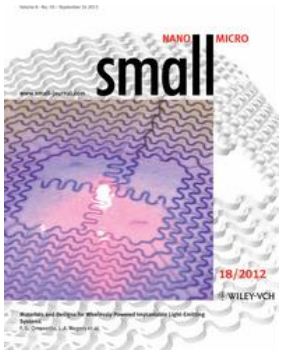
33. Y. H. Zhang, Y. H. Li, R. -H. Kim, H. Tao, **Tae-il Kim**, F.G. Omenetto, John.A. Rogers, Y. Huang, "Three-dimensional thermal analysis of wirelessly powered light-emitting systems" ***Proc. R. Sci. A*** 468 (2148) 4088-4097 (Dec 2012) [impact factor 1.971]

32. R. –H. Kim, S. Kim, Y. M. Song, H. Jung, **Tae-il Kim**, J. Lee, K. Choquette and John A. Rogers, "Flexible vertical light emitting diodes" ***Small*** 8 (20) 3123-3128 (July 2012) [impact factor 7.333]

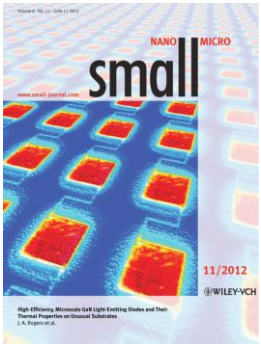
31. C. Pang, G. –Y. Lee, **Tae-il Kim**, , S. M. Kim, H. N. Kim, S. –H. Ahn, and K. –Y Suh, "A Flexible and Highly SensitiveStrain Gauge Sensor using Reversible Interlocking of Nanofibers" ***Nature Mater.*** 11 795-801 (Aug 23 2012) [featured on www.nature.com, www.physicsworld.com, www.nanotechweb.com, www.the-scientists.com], [highlighted in *Nature*][press released in EBS, Chosunbiz, MBN, and NAVER news, etc.] [impact factor 32.841]



30. **Rak hwan Kim#, Hu Tao#, Tae-il Kim#** Yihui Zhang, Stanley Kim, Bruce Panilaitis, Miaomiao Yang, Dae-Hyeong Kim, Yei Hwan Jung, boong Hun Kim, Yuhang Li, Yonggang Huang, Fiorenzo G. Omenetto, and John A. Rogers, "Materials and Designs for wirelessly Powered Implantable Light Emitting Systems" ***Small*** 8 (18) 2812-2818 (sep 27 2012)[selected inside cover] [impact factor 7.333]

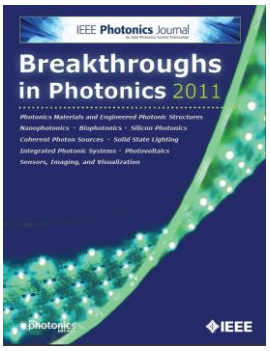


29. **Tae-il Kim**, Yei Hwan Jung, Zihou Song, Dae-Gon Kim, Yuhang Li, Hoon-sik Kim, Jonadan J. Weirer, Il-Sun Song, Husan An Pao, Yonggang Huang and John A. Rogers, "High efficiency, microscale GaN Light Emitting Diodes and their thermal properties on unusual substrates" ***Small*** 8 (11) (June 11 2012) [selected as a front cover] [impact factor 7.333]



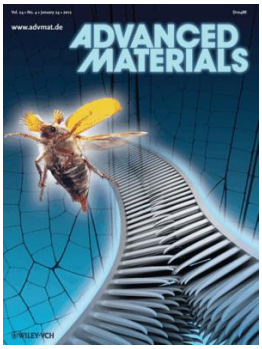
28. Sung Hun Jin, Muhammad A. Alam, **Tae-il Kim**, Jihun Kim, Muhammad A. Alam and John A. Rogers, "Sources of Hysteresis in Carbon Nanotube Field Effect Transistors and Their Elimination via Methylsiloxane Encapsulants and Optimized Growth Procedures" ***Adv. Func. Mater.*** 22 (11) (June 11 2012) (DOI: 10.1002/adfm.201102814) [impact factor 8.486]

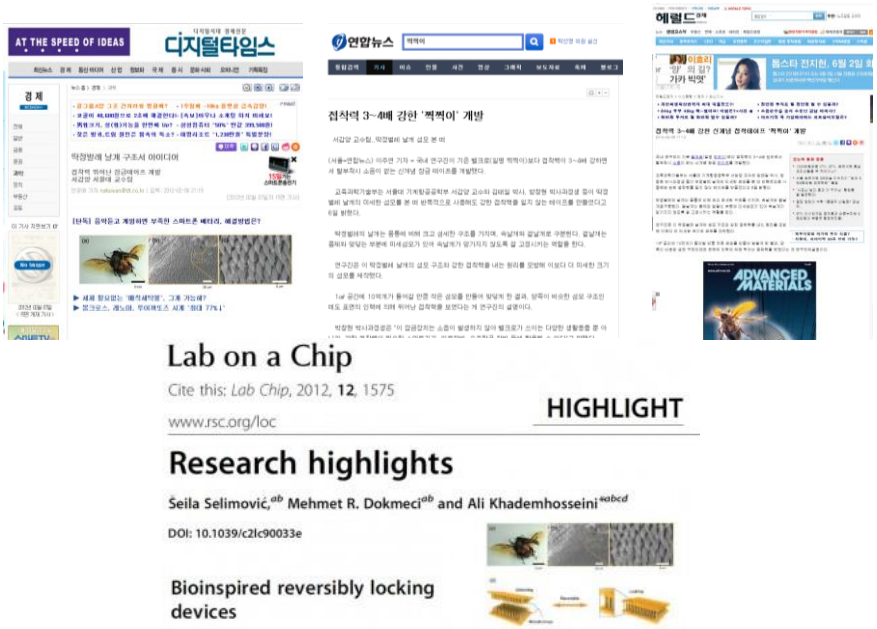
27. **Tae-il Kim**, Rak Hwan Kim and John A. Rogers, "Microscale inorganic light-emitting diodes on flexible and stretchable substrates" ***IEEE Photonics J.*** 4 (2) 607-612 (Apr 21 2012)(invited paper) [selected as a front cover] [selected in breakthrough in photonics 2011] [impact factor 2.344]



26. Changhyun Pang, Daeshik Kang, **Tae-il Kim** and Khap-Yang Suh, "Analysis of preload-dependent reversible mechanical interlocking using beetle-inspired wing locking device", ***Langmuir*** 28 (4) 2181-2186 (Jan 31. 2012) [invited article] [impact factor 4.268]

25. **Tae-il Kim**#, Changhyun Pang#, Won Kyu Bea, Dae-sik Kang, Sang Min Kim and Kahp Y. Suh, "Bio-inspired Reversible Interlocker Using Regularly Arrayed High Aspect-Ratio Polymer Fibers" (* equally contributed work) ***Adv. Mater.*** 24 (4), 475-479 (Jan 24 2012) (*equally contributed work) [selected as a front cover] [press released in KBS news and YTN news, etc.: http://news.kbs.co.kr/science/2011/10/09/2369276.html,] [highlighted on www.materialsviews.com] [Research highlighted on Lab on a Chip, http://pubs.rsc.org/en/content/articlehtml/2012/lc/c2lc90033e] [impact factor 10.857]

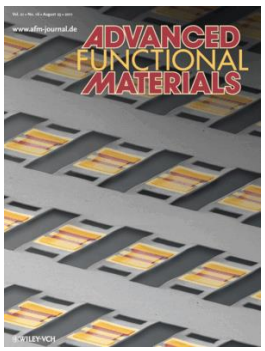


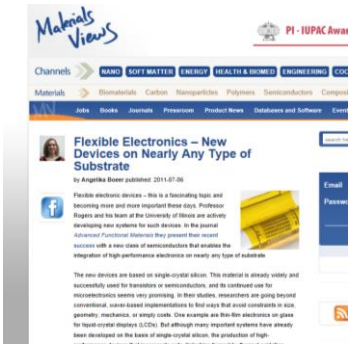


24. Yudi Rahmawan, **Tae-il Kim**, Seong Jin Kim, Kwang-Ryeol Lee, Myoung-woon Moon and Kahp-Yang Suh "Surface energy tunable nanohairy dry adhesive by broad ion beam irradiation" ***Soft Matter.*** 8 (5), 1673-1680 (Feb 7. 2012) [impact factor 4.500] (published 20 Dec 2011)

23. Dae-Hyeong Kim, Nanshu Lu, Rui Ma, Yun-Sung Kim, Rak hwan Kim, Shuodao Wang, Jian Wu, Sang Min Won, Hu Tao, Ahmad Islam, Ki Jun Yu, **Tae-il Kim**, Raeed Chowdhury, Ming Ying, Lizhi Xu, Ming Li, Hyun-Joong Chung, Hohyun Keom, Martin McCormick, Ping Liu, Yong-Wei Zhang, Fiorenzo G. Omenetto, Yonggang Huang, Todd Coleman and John A. Rogers, "Epidermal electronics" ***Science*** 333 (6044), 838-843 (Aug 12 2011). [featured on www.CNN.com, www.bbc.co.uk, www.usnews.com, www.smh.com.au, www.scientificamerican.com *et. al.*], [highlighted in *Nature*, *Science*] [impact factor 31.364]

22. **Tae-il Kim**[#], Hyun-Joong Chung[#], Hoon-Sik Kim, Spencer A. Wells, Sungjin Jo, Numair Ahmed, Yei Hwan Jung, Sang Min Won, Christopher A. Bower, John A. Rogers, "Fabrication of releasable single crystal silicon metal oxide field effect devices and their assembly on foreign substrates", ***Adv. Func. Mater.*** 21 (16) ,3029-3036 (Aug 23 2011). (*equally contributed work) [selected as a front cover] [highlighted on www.materialsviews.com] [impact factor 8.486]



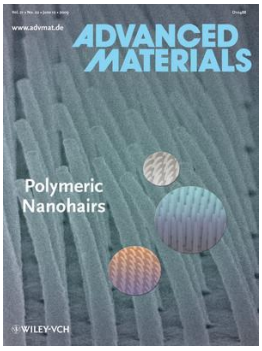


21. K Bong, **Tae-il Kim** and S. Seo, "Producing Producing soft molds of different feature size from a single template " ***J. Nanosci. Nanotechnol***. 11 (5), 4581-4585 (May 1 2011). [impact factor 1.352]

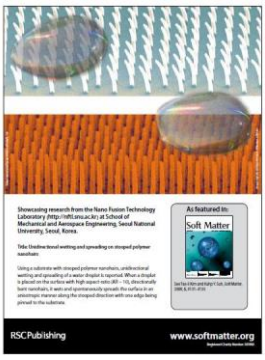
20. M. Kwak, H. E. Jeong **Tae-il Kim**, H. S. Yoon and Kahp. Y. Suh "Bio-inspired slanted polymer nanohairs for anisotropic wetting and directional dry adhesion"***Soft Matter.*** 6 (9), 1849-1857 (May 7 2010) [one of the most accessed paper of April 2010 in Soft Matter http://www.rsc.org/Publishing/Journals/sm/top10.asp] [invited article] [impact factor 4.500]

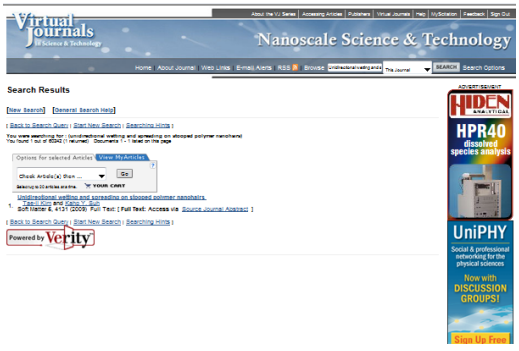
19. D. Tahk, **Tae-il Kim**, H. S. Yoon, M. Choi, K. Shin and K. Y. Suh "Fabrication of antireflection and anti-fogging polymer sheet by partial photopolymerization and dry etching" ***Langmuir*** 26 (4), 2240-2243 (Feb 16 2010). [impact factor 4.268]

18. **Tae-il Kim**, Hoon Eui Jeong, Kahp 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]



17. **Tae-il Kim** and Kahp Y. Suh, "Unidirectional wetting and spreading on stooped polymer nanohairs" ***Soft Matter.*** 5 (21), 4131-4135 (Nov 7. 2009) [selected as a back side cover] [featured on www.vjnano.org]. [impact factor 4.500]



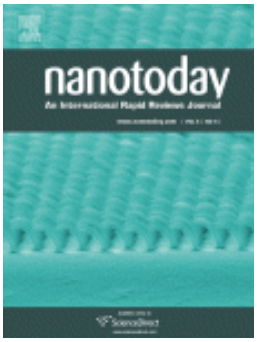


16. **Tae-il Kim**, Changhyun Pang and Kahp Y. Suh "Shape-tunable polymer nano-fibrillar structures by oblique e-beam irradiation"***Langmuir*** 25 (16), 8879-8882 (Aug 18 2009). [impact factor 4.268]

15. **Tae-il Kim**, D. H. Tahk and H. H. Lee, "Wettability-controllable super water- and moderately oil-repellent surface fabricated by wet chemical etching", ***Langmuir*** 25 (11), 6575-6579 (Jun 2 2009). [impact factor 4.268]

14. **Tae-il Kim**, and S. M. Seo, “The facile fabrication of a wire-grid polarizer with reversal rigiflex printing” ***Nanotechnology*** 20 (14), 145305 (Apr 8. 2009). [featured on www.nanotechweb.org and http://www.ebionews.com/] [impact factor 3.644]

13. H. S. Yoon, H. E. Jeong, **Tae-il Kim**, T. J. Kang, D. H. Tahk, K. H. Char and Kahp Y. Suh "Adhesion hysteresis of Janus nanopillars fabricated by nanomolding and oblique metal deposition" ***Nano Today*** 4 (5), 384-392 (Oct 1 2009).[selected as a front cover] [impact factor 11.730]



12. H. W. Kang, **Tae-il Kim**, K. Han and H. H. Lee, "All-polymer thin film transistor on patterned elastomeric substrate" ***Org. Electron.*** 10 (3), 527-531 (May 1 2009). [impact factor 4.869]

11. **Tae-il Kim**[#], M. K. Kwak[#], P. Kim, H. H. Lee, and K. Y. Suh, “Large-area dual-scale metal transfer by adhesive force” ***Small*** 5 (8), 928-932 (April 20 2009). ([*] equally contributed work) [impact factor 7.333]

10. H. W. Kang, **Tae-il Kim**, and H. H. Lee, "Self aligned, flexible, all polymer transistor: ultra-violet(UV) printing" ***Appl. Phys. Lett.*** 93 (20), 203308 (Nov 17 2008). [featured on www.physorg.com] [impact factor 3.820]

9. **Tae-il Kim**, C. Beak, K. Y. Suh, S. M. Seo, and H. H. Lee, "Optical lithography with printed metal mask and a simple superhydrophobic surface" ***Small*** 4 (2), 182-185 (Feb 1 2008). [featured on www.materialsviews.com][impact factor 7.333]

8. **Tae-il Kim**, Ju-hyung Kim, Sang J. Son, and S. M. Seo, "Gold nano-cones fabricated by nanotranfer printing and their application of field emission" ***Nanotechnology*** 19 (28), 295302 (Jul 23 2008) [featured on www.nanotechweb.org] [impact factor 3.644]

7. **Tae-il Kim**, Sang J. Son, and S. M. Seo, "Flexible top gate pentacene TFT with embedded source-drain electrode" ***Appl. Phys. Lett.*** 93 (1), 013304 (Jul 7 2008) [impact factor 3.820]

6. J. –H. Kim, S. –Y. Huh, **Tae-il Kim**, and H. H. Lee, "Thin pentacene interlayer for polymer bulk-heterojunction solar cell" ***Appl. Phys. Lett.*** 93 (14), 143305 (Oct 6 2008) [impact factor 3.820]

5. S. M. Seo, **Tae-il Kim**, and H. H. Lee "Simple fabrication of nanostructures by continuous rigiflex imprinting" ***Microelectron. Eng.*** 84 (4), 567-572 (Apr 1 2007) [impact factor 1.488]

4. **Tae-il Kim**, S. Kwon, J. Lee, and H. H. Lee, "Residue free nano filling with wetting solutions" ***Appl. Phys. Lett.*** 89 (17), 173115 (Oct 23 2006) [featured on www.vjnano.org] [impact factor 3.820]

3. S. M. Seo, J. H. Kim, **Tae-il Kim**, and H. H. Lee "Transfer fabrication technique for embedded and inverted micro/nano structure" ***Appl. Phys. Lett.*** 88 (2), 023118 (Jan 9 2006) [impact factor 3.820]

2. H. S. Yoon, **Tae-il Kim**, S. J. Choi, K. Y. Suh, M. J. Kim, and H. H. Lee "Capillary force lithography with impermeable molds" ***Appl. Phys. Lett.*** 88 (25), 254104 (Jun 19 2006) [impact factor 3.820]

1. D. Y. Khang, H. W. Kang, **Tae-il Kim**, and H. H. Lee, "Low pressure nanoimprint lithography" ***Nano Lett.*** 4 (4), 633-637 (Apr 1 2004) [impact factor 12.186]

-Submitted works

45. Dae-sik Kang, Chansuk Lee, Yong Whan Choi, Peter V. Pikhitsa, Sung Soo Shin, Linfeng Piao, Byeonghak Park, TakSun Shin, Mansoo Choi *, **Tae-il Kim*** and Kahp-Yang Suh, "Flexible Sensor" submitted

PATENTS

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