

SUKWON HWANG

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KU-KIST Graduate School of Converging Science and Technology
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I. EDUCATION

University of Illinois at Urbana-champaign
Ph.D. in Materials Science and Engineering (2013)

Hanyang University
M.S. in Materials Science and Engineering (2005)

Hanyang University
B.S. in Materials Science and Engineering (2003)

II. AWARDS

Fulbright Scholarship (2008 - 2010)
BK21 (Brain Korea 21), 3 semester (2003~2005)
Hanyang Graduate University, 1 semester (2003)
Hanyang University, 3 semesters (2000~2001)

III. APPOINTMENTS AND TRAINING

Korea University
Assistant Professor (2014-present)
KU-KIST Graduate School of Converging Science and Technology

Sungkyunkwan University
Post-doctoral Fellow (2014-2014)
Center for Neuroscience Imaging research (CNIR)
Institute for Basic Science (IBS)

University of Illinois at Urbana-champaign
Post-doctoral Fellow (2013 – 2014)
Department of Materials Science and Engineering
Frederick Seitz Materials Research Laboratory
Advisor: John A. Rogers

University of Illinois at Urbana-champaign
Graduate Research Assistant (2008 – 2013)
Department of Materials Science and Engineering
Frederick Seitz Materials Research Laboratory
Advisor: John A. Rogers

Hanyang University
Graduate Research Assistant (2003 – 2005)

Department of Materials Science and Engineering
Advisor: Chang Kyung Kim

IV. INDUSTRY EXPERIENCE

Samsung Electronics Co., LTD. (2005 ~ 2007)
Memory Division, Semiconductor Business, Assistant Engineer
A member of Team, it developed **the world's first "16G NAND FLASH MEMORY"**

V. INTELLECTUAL PROPERTY

[1] John A. Rogers, **Suk-Won Hwang**, Xian Huang. Processing techniques for silicon-based transient devices. (filed 2014, pending)

[2] John A. Rogers, Seung-Kyun Kang, **Suk-Won Hwang**, Jianjun Cheng, Yangfeng Zhang, Hanze Ying. Transient electronic devices comprising inorganic or hybrid inorganic and organic substrates and encapsulates. (filed 2014, pending)

[3] John A. Rogers, Fiorenzo G. Omenetto, **Suk-Won Hwang**, Hu Tao, Dae-Hyeong Kim, David Kaplan. (issued 2013). Transient devices designed to undergo programmable transformations. U.S/International patent US 20130140649 A1, WO 2013089867 A2/A3.

VI. PUBLICATIONS

[23] **Suk-Won Hwang**, Seung-Kyun Kang, Xian Huang, Mark A. Brenckle, Fiorenzo G. Omenetto, John A. Rogers

"Materials for Programmed, Functional Transformations in Transient Electronic System", **Advanced Materials**, DOI: 10.1002/adma.201403051 (2014)

[22] Hector Lopez Hernandez, Seung-Kyun Kang, Olivia P. Lee, **Suk-Won Hwang**, Joshua A. Kaitz, Bora Inci, Chan Woo Park, Sangjin Chung, Nancy R. Sottos, Jeffrey S. Moore, John A. Rogers, Scott R. White

"Triggered Transience of Metastable Poly(phthalaldehyde) for Transient Electronics", **Advanced Materials**, DOI: 10.1002/adma.201403045 (2014)

[21] Xian Huang, Yuhao Liu, **Suk-Won Hwang**, Seung-Kyun Kang, Dwipayan Patnaik, Jonathan Fajardo Cortes, John A. Rogers

“Biodegradable materials for multilayer transient printed circuit boards”, *Advanced Materials*, DOI: 10.1002/adma.201403164 (2014)

[20] Chris Edwards, Renjie Zhou, **Suk-Won Hwang**, Steven J. McKeown, Kaiyuan Wang, Basanta Bhaduri, Raman Ganti, Peter J. Yunker, Arjun G. Yodh, John A. Rogers, Lynford L. Goddard, Gabriel Popescu

“Diffraction phase microscopy: monitoring nanoscale dynamics in materials science [Invited]”, *Applied Optics* 53, G33-G43 (2014)

[19] Seung-Kyun Kang*, **Suk-Won Hwang***, Huanyu Cheng, Sooyoun Yu, Bong Hoon Kim, Jae-Hwan Kim, Yonggang Huang, John A. Rogers (*equally contributed)

“Dissolution behaviors and applications of silicon oxides and nitrides in transient electronics”, *Advanced Functional Materials* 24, 4427-4434 (2014)

[18] **Suk-Won Hwang**, Jun-Kyul Song, Xian Huang, Huanyu Cheng, Seung-Kyun Kang, Jae-Hwan Kim, Sooyoun Yu, Yonggang Huang, John A. Rogers

“High performance biodegradable/transient electronics on biodegradable polymers”, *Advanced Materials* 26, 3905-3911 (2014)

[17] **Suk-Won Hwang**, Gayoung Park, Chris Edwards, Elise Corbin, Seung-Kyun Kang, Huanyu Cheng, Jun-Kyul Song, Jae-Hwan Kim, Sooyoun Yu, Joanne Ng, Jung Eun Lee, Cassian Yee, Basanta Bhaduri, Fiorenzo G. Omennetto, Yonggang Huang, Rashid Bashir, Lynford Goddard, Gabriel Popescu, Kyung-Mi Lee, John A. Rogers

“Dissolution chemistry and biocompatibility of single crystalline silicon nanomembranes and associated materials for transient electronics”, *ACS Nano* 8, 5843-5851 (2014)

[16] **Suk-Won Hwang**, Gayoung Park, Huanyu Cheng, Jun-Kyul Song, Seung-Kyun Kang, Lan Yin, Jae-Hwan Kim, Fiorenzo G. Omennetto, Yonggang Huang, Kyung-Mi Lee, John A. Rogers

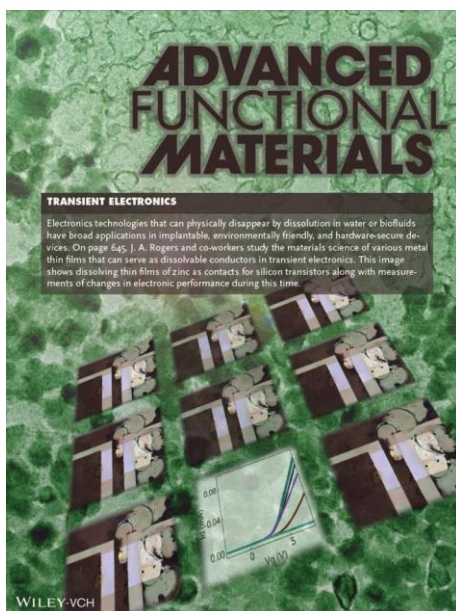
“25th Anniversary Article: Materials for high performance biodegradable semiconductor devices”, *Advanced Materials* 26, 1992-2000 (2014)

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[15] Lan Yin, Huanyu Cheng, Shimin Mao, Richard Haasch, Yuhao Liu, Xu Xie, **Suk-Won Hwang**, Harshvardhan Jain, Seung-Kyun Kang, Yewang Su, Rui Li, Yonggang Huang, John A. Rogers

“Dissolvable Metals for Transient Electronics”, *Advanced Functional Materials* 24, 645-658 (2014), ****Selected as Cover Feature in *Advanced Functional Materials***



[14] Canan Dagdeviren*, **Suk-Won Hwang***, Yewang Su, Stanley Kim, Huanyu Cheng, Ryan Haney, Yonggang Huang, John A. Rogers (*equally contributed)

“Transient, Biocompatible Electronics and Energy Harvesters Based on ZnO”, *Small* 9, 3398-3404 (2013)

[13] **Suk-Won Hwang**, Dae-Hyeong Kim, Hu Tao, Tae-il Kim, Stanley Kim, Ki Jun Yu, Bruce Panilaitis, Jae-Woong Jeong, Fiorenzo G. Omenetto, John. A. Rogers

“Materials and fabrication processes for transient and bioresorbable high performance electronics”, *Advanced Functional Materials* 23, 4087-4093 (2013)

[12] **Suk-Won Hwang**, Xian Huang, Jung-Hun Seo, Jun-Kyul Song, Stanley Kim, Sami Hage-Ali, Hyun-Joong Chung, Elliott Rill, Hu Tao, Fiorenzo G. Omenetto, Zhenqiang Ma, John A. Rogers

“Materials for bioresorbable radio frequency electronics”, *Advanced Materials* 25, 3526-3531 (2013)

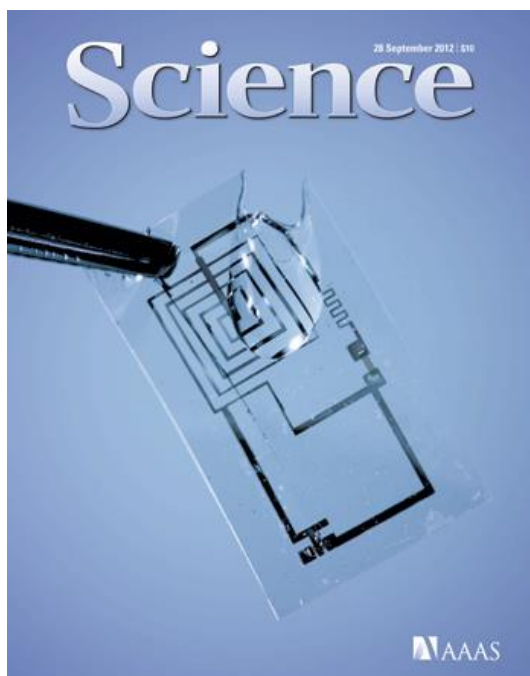
[11] Rui Li, Huanyu Cheng, Yewang Su, **Suk-Won Hwang**, Lan Yin, Hu Tao, Mark A. Brenckle, Dae-Hyeong Kim, Fiorenzo G. Omenetto, John A. Rogers, Yonggang Huang

“An analytical model of reactive diffusion for transient electronics”, *Advanced Functional materials* 23, 3106-3114 (2013)

[10] **S.-W. Hwang**, H. Tao, D.-H. Kim, H. Cheng, J.-K. Song, E. Rill, M.A. Brenckle, B. Panilaitis, S.M. Won, Y.-S. Kim, Y.M. Song, K.J. Yu, A. Ameen, R. Li, Y. Su, M. Yang, D.L. Kaplan, M.R. Zakin, M.J. Slepian, Y. Huang, F.G. Omenetto, J.A. Rogers,

“A Physically Transient Form of Silicon Electronics,” *Science* 337, 1640-1644 (2012).

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[9] J. Viventi, D.-H. Kim, L. Vigeland, E.S. Frechette, J.A. Blanco, Y.-S. Kim, A.E. Avrin, V.R. Tiruvadi, **S.-W. Hwang**, A.C. Vanleer, D.F. Wulsin, K. Davis, C.E. Gelber, L. Palmer, J. Van der Spiegel, J. Wu, J. Xiao, Y. Huang, D. Contreras, J.A. Rogers, B. Litt.,

“Flexible, Foldable, Actively Multiplexed, High-Density Electrode Array for Mapping Brain Activity In Vivo,” *Nature Neuroscience* 14, 1599-1605 (2011).

[8] D.-H. Kim, N. Lu, R. Ghaffari, Y.-S. Kim, S.P. Lee, L. Xu, J. Wu, R.-H. Kim, J. Song, Z. Liu, J. Viventi, B. de Graff, B. Elolampi, M. Mansour, M.J. Slepian, **S. Hwang**, J.D. Moss, S.-M. Won, Y. Huang, B. Litt, J.A. Rogers,

“Materials for Multifunctional Balloon Catheters With Capabilities in Cardiac Electrophysiological Mapping and Ablation Therapy,” *Nature Materials* 10, 316-323 (2011).

[7] **Hwang, S.W.**, Kim, J., Lim, S.U., Kim, C.K., Yoon, C.S.

“Magnetostriuctive properties and microstructure of thermally annealed Sm-Fe thin films”
Materials Science and Engineering A 449-451, 378-381 (2007)

[6] Lim, S.U., Kim, J., **Hwang, S.W.**, Kim, C.K., Yoon, C.S.

“Crystallization of $\text{Co}_{58-x}\text{Mn}_{20}\text{Ge}_x\text{B}_{10}\text{Si}_{12}$ ($x = 5, 10$) metallic glasses “
Materials Science and Engineering A 448-451, 531-534 (2007)

[5] **Hwang, S.-W.**, Jeon, K.-S., Kim, J., Kim, C.K., Yoon, C.S.

“Crystallization of amorphous $\text{Co}_{78-x}\text{Mn}_x\text{B}_{10}\text{Si}_{12}$ alloy”
Metallurgical and Materials Transactions A – Physical metallurgy and materials science 38A, 379-384 (2007)

[4] **Hwang, S.-W.**, Im, D.H., Chun, I.S., Yoon, C.S., Kim, C.K.

“Crystallization and structural relaxation of $\text{Co}_{48}\text{Mn}_{20}\text{Ge}_{10}\text{B}_{10}\text{Si}_{12}$ amorphous alloy”
Journal of Alloys and Compounds 413, 206-210 (2006)

[3] **Hwang, S.-W.**, Kim, S.J., Yoon, C.S., Kim, C.K.

“Crystallization and structural relaxation of $\text{Fe}_{78-x}\text{Pt}_x\text{B}_{10}\text{Si}_{12}$ metallic glasses”
Physica Status Solidi (A) Applied Research 201, 1875-1878 (2004)

[2] Im, D.H., Yoo, C.-S., Kim, S.J., **Hwang, S.-W.**, Chun, I.S., Yoon, C.S., Kim, C.K.

“Structure and magnetic properties of exchange-coupled Co-CoPt nanocomposite thin films”
Physica Status Solidi (A) Applied Research 201, 1862-1865 (2004)

[1] Kim, S.J., **Hwang, S.-W.**, Yoon, C.S., Kim, C.K.

“Structure and magnetic properties of thermally annealed $\text{Fe}_{73}\text{Pt}_5\text{B}_{10}\text{Si}_{12}$ amorphous metallic alloy”
Materials Science and Engineering B: Solid-State Materials for Advanced Technology 108, 266-270 (2004)

VII. BOOKS

Suk-Won Hwang, John A. Rogers. Materials and Integration Approaches for Transient Electronic Systems, 2014 (ISBN 978-3-639-70192-0). Scholars' Press, OmniScriptum GmbH & Co. KG, Saarbrücken, Germany.