Jiheong Kang

Address: #3306, W1 Bd Daehak-ro, Yuseong-gu, Daejeon 34141, Republic of Korea
Phone: +82 (010) 4733-1397 | Email: jiheongkang@kaist.ac.kr

Education and Professional Training

Feb 2020-Present — KAIST | Daejeon, Republic of Korea,
Assistant Professor in Materials Science and Engineering

Nov 2017 – Dec 2019 — Stanford University | Stanford, CA, USA
Postdoctoral Fellow in Chemical Engineering | Advisor: Prof. Zhenan Bao

Aug 2012 – Sep 2017 — The University of Tokyo | Tokyo, Japan
PhD in Chemistry and Biotechnology | Advisor: Daigo Miyajima and Prof. Takuzo Aida
Japan Society for the Promotion of Science (JSPS) Fellow (2014–2017)
Dissertation Title: Precisely controlled supramolecular system based on hydrogen bonds

Feb 2007 – Aug 2011 — Seoul National University | Seoul, Republic of Korea
BS in Chemistry |

Honors and Awards

2014 – 2017 — Japan Society For the Promotion of Science (JSPS) Fellow (2014–2017)

2016 — Reaxys PhD Prize, selected as one of three winners for doctoral research achievements,

2015 — Poster presentation Award, First Prize, 4th International Supramolecular System Symposium (ISSS); Chang Chun *(China)*

2014 — BASF Rising Star PhD award, selected as one of three winners for doctoral research achievements, *School of Engineering, The university of Tokyo (Japan)*

2012 — Best presentation award, selected as one of three best presenters for undergraduate research achievements, *Dep. of Chemistry, Seoul national university (Korea)*

2012 — The most popular presentation award, selected as the most popular presenter for undergraduate research achievements, *Dep. of Chemistry, Seoul national university (Korea)*

Publications

(† denotes equal contribution)

Postdoctoral Research

(12)) Kim,S. H.†; Seo, H.†; Kang, J.†: Hong, J.; Seong, D.; Kim, H-J.; Kim, J.; Mun, J.; Youn, I.; Kim, J.; Kim, Y-C.; Seok, H-K.; Lee, C.; Tok, J.B, Bao, Z.; Son, D. "An Ultrastretchable and Self-Healable Nanocomposite Conductor Enabled by Autonomously Percolative Electrical Pathways" *ACS Nano* 2019, 13 (6), 6531

(11) Kang, J.: Tok, J.B.; Bao, Z. "Self-healing Soft Electronics" *Nature Electronics* 2019, In Press

(10) Kang, J.†: Son, D.†; Vardoulis, O.†; Mun, J.; Matsuhisa, N.; Kim, Y.; Kim, J.; Tok, J.B.; Bao, Z. "Modular and Reconfigurable Stretchable Electronic Systems," *Advanced Materials Technologies* 2019, 4 (3), 1800417

(9) Son, D.†; Kang, J.†; Vardoulis, O.†; Kim, Y.; Matsuhisa, N.; Oh, J-Y.; To, J. W. F.; Mun, J.; Katsumata, T.; Liu, Y.; McGuire, A.; Krason, K.; Ham, J.; Kraft, U.; Lee, Y.; Lee, Y.; Tok, J.B.; Bao, Z. "An Integrated Self-healable Electronic Skin System Fabricated Via Dynamic Reconstruction of a Nanostructured Conducting Network," *Nature Nanotechnologies* 2018, 13 (11), 1057 *(Highlighted in Nano today)*

(8) Kang, J.†: Son, D.†; Wang, G.J.N; Liu, Y.; Lopez, J.; Kim, Y.; Oh, J.H.; Kasumata, T.; Mun, J.; Lee, Y.; Jin, L.; Tok, J.B.; Bao, Z. "Tough and Water-Insensitive Self-Healing Elastomer for Robust Electronic Skin," *Advanced Materials* 2018, 30 (13), 1706846 *(Highlighted in Advanced Science News)*

(7) Lee, Y.; Oh, J.H.; Xu, W.; Kim, O.; Kim, T.R.; Kang, J.; Y. Kim,; Son, D.; Tok, J.B.; Park, M.J.; Bao, Z. Lee, T.W. "Stretchable Organic Optoelectronic Sensorimotor Synapse" *Science Advances*, 2018, 4 (11), eaat7387,

(6) Mun, J.; Wang, G.J.N; Oh, J.H.; Katsumata, T.; Lee, F.; Kang, J.; Wu, H.; Lissel, F.; Simon, R.G.; Tok, J.B.; Bao, Z. "Effect of Nonconjugated Spacers on Mechanical Properties of Semiconducting Polymers for Stretchable Transistors," *Advanced Functional Materials* 2018, 28 (43), 180422

(5) Kim. Y†; Chortos, A†.; Xu, W†,; Liu, Yan, X.; Oh, J.H.; Son, D.; Kang, J.; Foudeh, A.M.; Zhu, C.; Lee, Y.; Niu, S.; Liu, J.; Pfattner, R.; Bao, Z.; Lee, T.W.; "A Bioinspired Flexible Organic Artificial Afferent Nerve," *Science* 2018, 360 (6392), 998

(4) Wang, G.J.N.; Zheng, Y.; Zhang, S.; Kang, J.; Wu, H.C.; Gasperini, A.; Zhang, H.; Gu, X.; Bao, Z. "Tuning the Cross-Linker Crystallinity of a Stretchable Polymer Semiconductor," *Chemistry of Materials* 2018, In press

Doctoral Research

(3) Kang, J.; Miyajima, D.; Mori, T.; Inoue, Y.; Itoh, Y.; Aida. T. "A rational strategy for the realization of chain-growth supramolecular polymerization," *Science* 2015, *347 (6222)*, 646 *(Highlighted in Nature chemistry News and view, Science Perspective, and Angewandte chemie Highlight)*

(2) Kang, J.; Miyajima, D.; Itoh, Y.; Mori, T.; Tanaka, H.; Yamauchi, M.; Inoue, Y.; Harada, S.; Aida. T. "C5-Symmetric Chial Corannulenes: Desymmetrization of Bowl Inversion Equilibrium via "Intramolecular" Hydrogen-Bonding Network" *Journal of the American Chemical Society* 2014, *136 (30)*, 10640.

Undergraduate Research

(1) Kim, Y.; Kang, J.; Shen, B.; Wang, Y.; He, Y.; M, Lee. "Open-Closed Switching Tubular Pores," *Nature Communications* 2015, *6*, 8650

PATENT

2019 Bao, Z., Kang, J., Son, D. "Stretchable, Tough, and Self-healing Elastomer and Applications". US Patent Application 16/155,536,

2019 Bao, Z., Kang, J., Son, D. Vardoulis, O. "Flexible and self-healing elastomer-based modular electronics and applications thereof". US Patent Application 16/155,592,

SELECTED PRESENTATIONS

(20) Kang, J. "Managing stress in soft electronics" *KAIST*, Jun, 2019, Daejeon, Korea *(Invited Talk)*

(19) Kang, J. "Managing stress in soft electronics" *Korea Institute of Science and Technology*, Jun, 2019, Seoul, Korea *(Invited Talk)*

(18) Kang, J. "Managing stress in soft electronics" *UNIST*, Jun, 2019, Ulsan, Korea *(Invited Talk)*

(17) Kang, J. and Bao, Z. "Tough and Water-Insensitive Self-Healing Elastomer for Soft Electronics" *MRS Spring meeting*, Apr, 2019, Phoenix, US *(Oral)*

(16) Kang, J. "Precise covalent and non-covalent synthesis for material science," *Yonsei University*, Feb, 2019, Seoul, Korea *(Invited Talk)*

(15) Kang, J. and Bao, Z. "Integrated Electronic Skins with Stretchability, Self-healability, and Modularity" *MRS Fall meeting*, Nov, 2018, Boston, US *(Oral)*

(14) Kang, J. "Dynamic and non-dynamic chemical system," *Seoul National University*, Nov, 2018, Seoul, Korea *(Invited Talk)*

(13) Kang, J. "From precise chemical design to system," *Seoul National University*, Aug, 2018, Seoul, Korea *(Invited Talk)*

(12) Kang, J. "Soft self-healing electronics," *Korea Institute of Science and Technology*, Sep, 2017, Seoul, Korea *(Invited Talk)*

(11) Kang, J. "Adding self-healing function to electronics," *RIKEN CEMS*, Jun, 2017, Tokyo, Japan *(Invited Talk)*

(10) Kang, J. "A rational strategy for the realization of chain-growth supramolecular polymerization," *Reaxys PhD Symposium*, Sep, 2016, London, UK *(Invited Talk)*

(9) Kang, J., Miyajima, D., Aida, T. "Selective synthesis of supramolecular helices from single molecule," *4th International Supramolecular System Symposium (ISSS)*, Jun, 2015, Changchun, China *(Poster)*

(8) Kang, J., Miyajima, D., Aida, T. "Selective synthesis of supramolecular helices from single molecule," *KCS meeting*, May, 2015, Seoul, Korea *(Oral)*

(7) Kang, J., Miyajima, D., Aida, T. "A rational strategy for the realization of chain-growth supramolecular polymerization," *CSJ annual meeting*, Mar, 2015, Tokyo, Japan *(Oral)*

(6) Kang, J. Miyajima, D., Aida, T. "Selective synthesis of supramolecular helices from single molecule," *Gordon Research Conference in Artificial molecular switches and motors*, Jun, 2015, Tokyo, Japan *(Poster)*

(5) Kang, J. "A rational strategy for the realization of chain-growth supramolecular polymerization," *BASF Rising Star symposium*, Dec, 2014, Tokyo, Japan *(Invited Talk)*

(4) Kang, J. Miyajima, D., Aida, T. "Selective synthesis of supramolecular helices from single molecule," *ACS meeting*, Jun, 2014, San francisco, US *(Poster)*

(3) Kang, J. Miyajima, D., Aida, T. "Enantioselection of C5-sym Corannulene Derivatives via 1D Supramolecular Assemblies," *Gordon Research Conference in Self-assembly and Supramolecular Chemistry*, May, 2014, Les Diablerets, Switzerland *(Poster)*

(2) Kang, J., Lee, M. "Smart Nanofibers with Switchable Chirality from Self-assembly of Amphiphilic Macrocycles," *CSJ annual meeting*, Mar, 2013, Tokyo, Japan *(Oral)*

(1) Kang, J., Sohn, B. "Controlled self-assembly of gold nanorods enabled by surface modifications," *SNU Undergraduate Research Symposium*, Dec, 2011, Seoul, Korea *(Poster)*

Research Experiences

Nov 2017 – present
Bao Research Group | Stanford University, Stanford, CA, USA
Postdoctoral researcher **(Advisor: Prof. Zhenan Bao)**
Design and Synthesis of Self-Healing Materials and their Soft Electronics Applications

Jun 2016 – Oct 2017
Bao Research Group | Stanford University, Stanford, CA, USA
Visiting student researcher **(Advisor: Prof. Zhenan Bao)**
Design and Synthesis of Self-Healing Materials and their Soft Electronics Applications

Feb 2012 – Aug 2017
Aida Laboratory | The University of Tokyo, Tokyo, Japan
Graduate research assistant **(Advisor: Prof. Takuzo Aida)**
Development of controlled supramolecular polymerization

Feb 2012 – Aug 2017
CEMS | RIKEN, Wako, Japan
Visiting student researcher **(Advisor: Dr. Daigo Miyajima)**
Development of controlled supramolecular polymerization

Jan 2012 – Aug 2012
Center for molecular self-assembly | Seoul National University, Seoul, Korea
Undergraduate Research Assistant **(Advisor: Prof. Myongsoo Lee)**
Synthesis of macromolecules and their dynamic self-assembly in water

Professional Activities and Outreach

- **Independent Peer Reviewer**: Advanced Materials, Small, Organic Electronics
- **American Chemical Society (2012 – present),** Member
- **Materials Science Research (2017 – present),** Member