

NANO KOREA 2020

July 1~3, KINTEX, Korea

Jang-Sik Lee

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EDUCATION

Seoul National University	Ph.D	Materials Science & Engineering	2002
Seoul National University	MS	Materials Science & Engineering	1999
Seoul National University	BS	Metallurgical Engineering	1997

PROFESSIONAL ACTIVITIES

- Professor, Department of Materials Science and Engineering, POSTECH, Korea (2017 to Present)
- Associate Professor, Department of Materials Science and Engineering, POSTECH, Korea (2013 to 2017)
- Visiting Scholar, University of Texas at Dallas, Texas, USA (2012~2013)
- Associate Professor, Kookmin University, Seoul, Korea (2011 to 2013)
- Assistant Professor, Kookmin University, Seoul, Korea (2006 to 2011)
- Senior Research Engineer, Samsung Electronics, Korea (2004 to 2006)
- Director's Postdoctoral Fellow, Los Alamos National Laboratory, USA (2002 to 2004)
- Brain Korea 21 Postdoctoral Fellow, Seoul National University, Seoul, Korea. (2002)

AWARD AND HONORS

- Mueunjae Chair Professor, POSTECH, 2019
- Commendation of Ministry of Trade, Industry and Energy, The 11th Semiconductor Day, October 2018.
- Best Poster Presentation Award, Spring Meeting of Korea Institute of Metals and Materials, April 2013.
- Best Poster Presentation Award, 18th Korea Conference on Semiconductors, February 2012.
- Best Professor Award in Research (Presidential Award), Kookmin University, October 2011.
- Best Presentation Award, 2011 Summer Meeting of KIEEME, June 2011.
- Materials Research Society Best Poster Award, 2010 MRS Fall Meeting, December 2010.

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- National R&D 100 Award (국가연구개발 우수성과 100선 선정), Ministry of Education, Science and Technology, December 2008.
- KOSEF R&D 50 Award (교육과학기술부 연구개발사업 우수연구성과 50선 선정), Ministry of Education, Science and Technology, September 2008.

MAIN SCIENTIFIC PUBLICATION

- Min-Kyu Kim and Jang-Sik Lee*, "Synergistic Improvement of Long-Term Plasticity in Photonic Synapses using Ferroelectric Polarization in Hafnia-based Oxide-semiconductor Transistors," *Advanced Materials*, 1907826 (2020)
- Min-Kyu Kim and Jang-Sik Lee*, "Ferroelectric Analog Synaptic Transistors," *Nano Letters* 19, 2044-2050 (2019)
- Min-Kyu Kim and Jang-Sik Lee*, "Short-Term Plasticity and Long-Term Potentiation in Artificial Biosynapses with Diffusive Dynamics," *ACS NANO* 12, 1680-1687 (2018)
- Youngjun Park and Jang-Sik Lee*, "Artificial Synapses with Short- and Long-Term Memory for Spiking Neural Networks based on Renewable Materials," *ACS NANO* 11, 8962-8969 (2017)
- Bohee Hwang and Jang-Sik Lee*, "A strategy to design high-density nanoscale devices utilizing vapor-deposition of metal-halide perovskite materials," *Advanced Materials* 29, 1701048 (2017)
- Chungwan Gu and Jang-Sik Lee*, "Flexible Hybrid Organic-Inorganic Perovskite Memory," *ACS NANO* 10, 5413-5418 (2016)
- Young-Su Park and Jang-Sik Lee*, "Design of an Efficient Charge-Trapping Layer with a Built-In Tunnel Barrier for Reliable Organic Transistor Memory," *Advanced Materials* 27, 706-711 (2015)
- Jang-Sik Lee* et al., "Multilevel Data Storage Memory Devices Based on the Controlled Capacitive Coupling of Trapped Electrons," *Advanced Materials* 3, 2064-2068 (2011)
- Soo-Jin Kim and Jang-Sik Lee*, "Flexible Organic Transistor Memory Devices," *Nano Letters* 10, 8, 2884 (2010)
- Jang-Sik Lee* et al., "Layer-by-layer assembled charge-trap memory devices with adjustable electronic properties," *Nature Nanotechnology* 2, 790-795 (2007)

RESEARCH INTERESTS

- Emerging nanoscale memory devices
- Functional nanoelectronic materials and devices
- Flexible/organic nanoelectronic devices
- Bioinspired materials and devices
- Neuromorphic devices
- Ferroelectric materials and devices
- Organic-inorganic hybrid materials and devices