

# NANO KOREA 2019

## July 3~5, KINTEX, Korea

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#### **EDUCATION**

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|--|------|-----------------------------------|-------------|
| Korea Advanced Institute of Science and Technology, Daejeon, Korea | Ph.D | Materials Science and Engineering | <b>2007</b> |
| Korea Advanced Institute of Science and Technology, Daejeon, Korea | MS   | Materials Science and Engineering | <b>2004</b> |
| Korea University, Seoul, Korea                                     | BS   | Materials Science and Engineering | <b>2002</b> |

#### **PROFESSIONAL ACTIVITIES**

- Associate Professor, School of Advanced Materials Science and Engineering, Sungkyunkwan University, Korea, September 2016 to Present
- Assistant Professor, School of Advanced Materials Science and Engineering, Sungkyunkwan University, Korea, September 2012 to August 2016
- Postdoctoral Researcher, The Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, USA, January 2011 to August 2012
- Postdoctoral Researcher, Max Planck Institute of Microstructure Physics, Germany, October 2008 to December 2010
- Postdoctoral Researcher, Applied Science Research Institute, Korea Advanced Institute of Science and Technology, Korea, September 2007 to February 2009

#### **AWARD AND HONORS**

- Humboldt Research Fellowship, Alexander von Humboldt Foundation, Germany, 2007
- MRS Silver Graduate Student Award, Materials Research Society (MRS), USA, 2006
- Honor prize, Human Tech Paper Award, Samsung Electronics, Korea, 2005

#### **MAIN SCIENTIFIC PUBLICATION**

- "Atomic-scale symmetry breaking for out-of-plane piezoelectricity in two-dimensional transition metal dichalcogenides", *Nano Energy* 58, 57-62 (2019)
- "Direct probing of polarization charge at nanoscale level", *Adv. Mater.* 30, 1703675 (2018)
- "Surface-screening mechanisms in ferroelectric thin films and their effect on polarization dynamics and domain structures", *Rep. Prog. Phys.* 81, 036502 (2018)
- "Origin of hysteresis in CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> perovskite thin-films", *Adv. Funct. Mater.* 27, 1701924 (2017)

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- “Super-resolution visible photoactivated atomic force microscopy”, Light Sci. Appl. 6, e17080 (2017)
- “Room temperature semiconductor-metal transition of MoTe<sub>2</sub> thin film engineered by strain”, Nano Lett. 16, 188-193 (2016)
- “Controllable charge transfer by ferroelectric polarization mediated triboelectricity”, Adv. Funct. Mater. 26, 3067-3073 (2016)
- “Mechanical control of electroresistive switching”, Nano Lett. 13, 4068-4074 (2013)
- “Universality of polarization switching dynamics in ferroelectric capacitors revealed by 5D piezoresponse force microscopy”, Adv. Funct. Mater. 23, 3971-3979 (2013)

### ***RESEARCH INTERESTS***

- Nanoscale observation, manipulation, and analysis of electrical, electrochemical, and electromechanical systems using **scanning probe microscopy**