

Curriculum Vitae

KIM, Young Heon (1978. 09. 21)

Graduate School of Analytical Science and Technology (GRAST), Chungnam National University

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Date of Birth: 21 September 1978

Professional Experience

Associate Professor in Chungnam National University (CNU), 2018. 09 - present

Principal Research Scientist in Korea Research Institute of Standards and Science (KRISS), 2016. 03 – 2018. 08)

Distinguished Researcher in Korea Research Institute of Standards and Science (KRISS), 2016. 03 – 2018. 08)

Senior Research Scientist in Korea Research Institute of Standards and Science (KRISS), 2008. 05 – 2016. 2.)

Visiting Scientist in Max-Planck Institute of Microstructure Physics (in Germany), 2012. 05 - 2013. 04

Postdoctoral Research in Korea Research Institute of Standards and Science (KRISS), 2007.02 – 2008. 04

Visiting Researcher at University of Oxford supported by the Brain Korea 21 Program in Korea, 2005. 01 – 2005. 07

Education

Ph.D. in Materials Science, Korea Advanced Institute of Science and Technology (KAIST), 2007

(Thesis: Structural Properties and Growth Mechanism of Sb-based Compound Semiconductors)

M.S. in Materials Science, Korea Advanced Institute of Science and Technology (KAIST), 2003

B.S. in Materials Science and Metallurgy, Kyungpook National University, 2001

Research Area

My research subjects are:

- *in-situ* (scanning) transmission electron microscopy: Mechanical test, liquid cell, and temperature dependence
- Microstructural Characterization: Thin films (Compound semiconductors and oxides), Bulk (Piezoelectric materials) and Nanostructures (Nanowires and nanoparticles)
- 3D printing: Materials and Device Fabrication
- Instrumentation: in-situ/Operando TEM holders and detectors

My technical skills are:

- Transmission electron microscopy (TEM, FEI Tecnai F30, JEOL-ARM (Cs-corrected probe), JEOL-2100F, JEOL-3010, JEOL-4000EX, 2000EX) & Specimen preparation
- Materials characterization: scanning electron microscopy (SEM, Hitachi-S4800, FEI-Sirion), atomic force microscopy (AFM), X-ray diffraction (XRD), Photoluminescence (PL), I-V measurement (including PPMS)
- Materials synthesis: chemical vapor deposition (CVD), molecular beam epitaxy (MBE), wet-chemistry method, sputtering
- Device fabrication: photo-lithography, e-beam lithography, e-beam and thermal evaporators
- 3D printing: direct light processing (DLP) and Stereolithography

Refereed Journal Articles (international, *: corresponding author, 2015 - present)

1. Suji Choi, Jeonghwan Lee, Minwook Pin, Ji Hwan Kwon, In Kim, Min Sun Yeom, Chung Soo Kim, H. S. Lee, Sang Jung Ahn, Seong-Hoon Yi and **Young Heon KIM***, “Anisotropic Atomistic Evolution During the Sublimation of Polar InAs Nanowires”, *Nanoscale*, 11(14), 6685-6692 (2019).
2. Kyu Yeon Jang, Sang Jung Ahn, Ji-Hwan Kwon, Ki Min Nam, and **Young Heon Kim***, “Structure in CoO Nanocrystals: In Situ Transmission Electron Microscopy Study”, *J. Phys. Chem. C* 123(16), 10684-10694 (2019).
3. Hung Bae Ahn, **Young Heon Kim***, “Controllable three-dimensional ZnO hybrid nanostructures”, *Mater. Res. Express* 6(8), 0850b8 (2019).
4. Yujin Hwang, Jeonghwan Lee, **Young Heon Kim**, Sunho Jeong, Su Yeon Lee, Jaebong Jung, Ji Hoon Kim, Youngmin Choi, Sungmook Jung, “Lubricant-added Conductive Composite for Direct Writing of a Stretchable Electrode”, *ACS Appl. Mater. & Interfaces* 11(51), 48459-48465 (2019).
5. Ji Hyeon Kim, Ahyeon Ma, Haeun Jung, Ha Young Kim, Hye Rin Choe, **Young Heon Kim**, Ki Min Nam, “In Situ Growth of the Bi₂S₃ Nanowire Array on the Bi₂MoO₆ Film for an Improved Photoelectrochemical Performance”, *ACS Omega* 4(17), 17359-17365 (2019).
6. Min Wook Pin, Eun Jin Park, Suji Choi, Yong Il Kim, Chang Hoon Jeon, Tai Hwan Ha, **Young Heon Kim***, “Atomistic evolution during the phase transition on a metastable single NaYF₄: Yb, Er upconversion nanoparticle”, *Sci. Rep.* 2. 2 (2018)
7. Jeong Hwan Lee, Suji Choi, Ji Hwan Kwon, Seung-Mo Lee, Ansoon Kim, Hionsuck Baik, Sang Jung Ahn, Seong-Gu Hong, Yong Ju Yun, **Young Heon Kim***, “Abnormal elastic modulus behavior in a crystalline-amorphous core-shell nanowire system”, *Phys. Chem. Chem. Phys.* Accepted (2018)
8. Kwang-Il Kim, **Young Heon Kim**, Takashi Ogawa, Suji Choi, Boklae Cho, Sang Jung Ahn, In-Yong Park, “Fabrication of a trimer/single atom tip for gas field ion sources by means of field evaporation without tip heating”, *Ultramicroscopy* 192, 50-56 (2018)
9. Yong Ju Yun, Jongil Ju, Joong Hoon Lee, Sung-Hwan Moon, Soon-Jung Park, **Young Heon Kim**, Won G Hong, Dong Han Ha, Heeyeong Jang, Geon Hui Lee, Hyung-Min Chung, Jonghyun Choi, Sung Woo Nam, Sang-Hoon Lee, Yongseok Jun, “Highly Elastic Graphene-Based Electronics Toward Electronic Skin”, *Adv. Funct. Mater.* (2017, online published)
10. Eric A Grulke, Kazuhiro Yamamoto, Kazuhiro Kumagai, Ines Häusler, Werner Österle, Erik Ortel, Vasile-Dan Hodoroaba, Scott C Brown, Christopher Chan, Jiwen Zheng, Kenji Yamamoto, Kouji Yashiki, Nam Woong Song, **Young Heon Kim**, Aleksandr B Stefaniak, D Schwegler-Berry, Victoria A Coleman, Åsa K Jämting, Jan Herrmann, Toru Arakawa, Woodrow W Burchett, Joshua W Lambert, Arnold J Stromberg, “Size and shape distributions of primary crystallites in titania aggregates”, *Adv. Powder Tech.* 28(7), 1647-1659 (2017)
11. Gisang Park, Yong-Il Kim, **Young Heon Kim***, Mira Park, Kyu Yeon Jang, Hyunjoon Song, Ki Min Nam, “Preparation and phase transition of FeOOH nanorods: strain effects on catalytic water oxidation”, *Nanoscale* (2017, accepted) (co-first author)
12. Suji Choi, Jong Hoon Lee, Min Wook Pin, Dong Won Jang, Seong-Gu Hong, Boklae Cho, Sang Jun Lee, Jong Seok Jeong, Seong-Hoon Yi, **Young Heon Kim***, “Study on fracture behavior of individual InAs nanowires using an electron-beam-drilled notch”, *RSC Adv.* 7(27), 16655 (2017)
13. C. Yoon, J.H. Lee, S. Lee, J.H. Jeon, J.T. Jang, D.H. Kim, **Y.H. Kim**, Bae Ho Park, “Synaptic Plasticity

- Selectively Activated by Polarization-Dependent Energy-Efficient Ion Migration in an Ultrathin Ferroelectric Tunnel Junction”, *Nano Lett.* 17(3), 1949-1955 (2017)
14. J.H. Lee, M.W. Pin, S.J. Choi, M.H. Jo, J.C. Shin, S. Hong, S. Lee, B. Cho, S. J. Ahn, N. W. Song, S. YI, **Y.H. Kim***, “Electromechanical Properties and Spontaneous Response of the Current in InAsP Nanowires”, *Nano Lett.* 16(11), 6738 (2016)
 15. J.H. Lee, C. Yoon, S. Lee, **Y.H. Kim**, B.H. Park, “Direct Observation of Domain Motion Synchronized with Resistive Switching in Multiferroic Thin Films”, *ACS Appl. Mater. Interfaces*, 8(51), 35464 (2016)
 16. J. Park, H. Kang, **Y.H. Kim**, S. Lee, T.G. Lee, J. Wi, “Physically-synthesized gold nanoparticles containing multiple nanopores for enhanced photothermal conversion and photoacoustic imaging”, *Nanoscale*, 8(34) 15514 (2016).
 17. J.H. Lee, J.H. Jeon, C. Yoon, S. Lee, Y.S. Kim, T.J. Oh, **Y.H. Kim**, J. Park, T.K. Song, B.H. Park, “Intrinsic defect-mediated conduction and resistive switching in multiferroic BiFeO₃ thin films epitaxially grown on SrRuO₃ bottom electrodes”, *Appl. Phys. Lett.* 108(11), 112902 (2016).
 18. **Y.H. Kim***, J.H. Lee, Y.K. Noh, J.E. Oh, S.J. Ahn, "Microstructural Characteristics of AlN Thin Layers Grown on Si (110) Substrates by Molecular Beam Epitaxy: Transmission Electron Microscopy Study", *Thin Solid Films* **576**, 61 (2015).
 19. **Y.H. Kim***, S.J. Ahn, S.T. Lee, M. Kim, J.E. Oh, "Formation of Silicon (Si) Grains in AlN Thin Layer Grown on an Si (1 1 1) Substrate: Effect of Deposition Sequence" *Bull. Kor. Chem. Soc.* **36**, 1008 (2015)
 20. J.H. Lee, **Y.H. Kim***, S.J. Ahn, T.H. Ha, H.S. Kim, "Grain-size effect on the electrical properties of nanocrystalline indium tin oxide thin films", *Mater. Sci. Eng. B* **199**, 37 (2015).
 21. J.H. Lee, H. Ryu, S.J. Ahn, Y.K. Noh, J.E. Oh, **Y.H. Kim***, "Microstructural properties of GaN grown on a Si (110) substrate by gas-source molecular beam epitaxy: Dependence on the ammonia flux", *Curr. Appl. Phys.* **15**, 232 (2015).
 22. T. DN Ngo, J.-W. Chang, K. Lee, S. Han, J. S. Lee, **Y. H. Kim**, M.-H. Jung, Y.-J. Doh, M.-S. Choi, J. Song, J. Kim, "Polarity-tunable magnetic tunnel junctions based on ferromagnetism at oxide heterointerfaces", *Nat. Comm.* **6**, 8035 (2015).