

CURRICULUM-VITAE

Dr. Hyun-Suk Kim

Position

Associate Professor, Department of Materials Science and Engineering, Chungnam National University



Mailing Address

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Education

Ph.D. in Materials Science and Engineering: Mar. 2003 ~ Aug. 2006

Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

Advisor: [Prof. Ho-Gi Kim](#)

Thesis Title: "A Study on Integrating (Ba,Sr)TiO₃ Thin Films based Microwave Tunable Devices onto Si Wafers"

M.S. in Materials Science and Engineering: Mar. 2001 ~ Feb. 2003

Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

Advisor: [Prof. Ho-Gi Kim](#)

Thesis Title: "Characterization of Doped BST Thin Films for Microwave Tunable Device Applications"

B.S. in Materials Science and Engineering: Mar. 1997 ~ Feb. 2001

Department of Materials Science and Engineering, Korea University, Seoul, Republic of Korea

Experience

Visiting Professor: July 2018 ~ July 2019

Department of Materials Science and Engineering, Massachusetts Institute of Technology (MIT), Cambridge, MA, USA

Associate Professor: Mar. 2018 ~ present

Department of Materials Science and Engineering, Chungnam National University, Republic of Korea

Assistant Professor: Mar. 2014 ~ Feb. 2018

Department of Materials Science and Engineering, Chungnam National University, Republic of Korea

Senior Research Engineer: Nov. 2013 ~ Feb. 2014

IT Panel Development Group, Samsung Display, Republic of Korea

Research Staff Member: Oct. 2009 ~ Oct. 2013

Display Devices Lab., Samsung Advanced Institute of Technology, Republic of Korea

Postdoctoral Fellow: Feb. 2009 ~ Sep. 2009

Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

Supervisor: Prof. Kisuk Kang (currently at Seoul National University)

Postdoctoral Fellow: Feb. 2007 ~ Jan. 2009

Department of Materials Science and Engineering, Massachusetts Institute of Technology (MIT), Cambridge, MA, USA

Supervisor: Prof. Caroline A. Ross

Postdoctoral Fellow: Sep. 2006 ~ Jan. 2007

Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

Supervisor: Prof. Ho-Gi Kim

Research interest

Thin film transistors: oxide/oxynitride semiconductors, 2D semiconductor

Lithium thin-film battery: cathode, solid electrolyte, anode

Material design/modeling: first principles calculation

Thin film processing and characterization

Surface and interface analysis

Synthesis & characterization of nanostructures and nanomaterials

Professional Activities

Editorial Director, The Kor. Institute of Electrical and Electronic Mater. Eng., 2016-present

Publications

SCI/SCIE 108 Papers, 26 Patents

Selected Publications

1. Anomalous Defect Dependence of Thermal Conductivity in Epitaxial WO₃ Thin Films, *Advanced Materials*, vol. 2019, 1903738 (2019).
 2. Highly Stable Thin-Film Transistors based on Indium Oxynitride Semiconductor”, *ACS Applied Materials & Interfaces*, vol. 10, 15873 (2018)
 3. Effects of fluorine doping on the electrical performance of ZnON thin-film transistors *ACS Applied Materials & Interfaces*, vol. 9, 24688 (2017)
 4. Superior electron transport properties of zinc oxynitride semiconductors: an extensive study on the materials characteristics and the associated field effect devices, *Scientific Reports*, vol. 6, 24787 (2016)
 5. A Study on the photoresponse of amorphous In-Ga-Zn-O and zinc oxynitride semiconductor devices by the extraction of sub-gap state distribution and device simulation, *ACS Applied Materials & Interfaces*, vol. 7, 15570 (2015)
 6. Anion control as a strategy to achieve high-mobility and high-stability oxide thin film transistors, *Scientific Reports*, vol. 3, 1459 (2013)
 7. Review of recent developments in amorphous oxide semiconductor thin-film transistor devices, *Thin Solid Films*, vol. 520, 1679-1693 (2012)
- [Invited Review Article]
8. Ferromagnetism in Single Crystal and Nanocomposite Sr(Ti,Fe)O₃ Epitaxial Films,

Journal of Materials Chemistry, vol. 21, 10364-10369 (2011)

9. Flexible energy storage devices based on graphene paper, *Energy & Environmental Science*, vol. 4, 1277-1283 (2011)
10. Self-assembled single-phase perovskite nanocomposite thin films, *Nano Letters*, 10, 597-602 (2010)