

Curriculum Vitae

Taewook Nam, Ph.D.

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CURRENT POSITION

Postdoctoral Research Associate

University of Colorado Boulder (PI: Steven M. George)

2019.11 – Present

EDUCATION

- **Ph.D.** in Department of Electrical & Electronic Engineering, Yonsei University
2018

Supervisor: Prof. Hyungjun Kim

GPA: 4.05 / 4.5

Dissertation: *Ultrathin Film Deposition using Atomic Layer Deposition for Diffusion and Moisture Barriers*

- **M.S.** in Department of Electrical & Electronic Engineering, Yonsei University
2013

Supervisor: Prof. Hyungjun Kim

GPA: 4.05 / 4.5

Thesis: *Atomic Layer Deposition and Characterization of Ga doped ZnO*

- **B.S.** in Department of Electrical & Electronic Engineering, Yonsei University
2011

Supervisor: Prof. Hagbae Kim

GPA: 3.7 / 4.5

TECHNICAL SKILLS & PROFICIENCIES

- **Thin Film/Nanostructured Material Deposition and Etching & Device Fabrication**
 - Extensive and in-depth experience with the film growth in **atomic layer deposition (ALD)**
→ Metal oxide (SiO₂, Al₂O₃, ZrO₂, HfO₂, ZnO, Ga₂O₃, In₂O₃, SnO_x, NiO, TiO₂, MoO_x), metal (Pt, Ru, Co, Ni, W), nitride (SiN_x, TiN_x), and 2D TMDCs (MoS₂, WS₂, WSe₂)
 - Pioneering experience with the film etching in **thermal atomic layer etching (ALE)**
→ Metal oxide (Al₂O₃, ZrO₂, HfO₂, ZnO, SnO_x), metal (Mo, W, Ni), III-V semiconductors (InAs, GaAs, GaSb, InGaP, InGaAs), and 2D TMDCs (MoS₂, WS₂)
 - Area-selective atomic layer deposition (AS-ALD) using surface inhibition
 - Nanoscale film deposition by magnetron sputtering and thermal evaporation
 - Surface treatment and modification by using plasma or self-assembled monolayer (SAM)
 - Mechanical exfoliation of 2D material and characterization
 - Diverse nanostructure fabrication (e.g. NW, AAO) & treatment (RTP, etc.)
 - Fabrication of metal-oxide-semiconductor capacitor (MOSCAP), and thin film transistor (TFT)
- **Experimental Tool Design, Construction, and Maintenance**
 - Highly experienced in designing, manufacturing, and maintenance of ALD chamber (for low-temperature specialized / for TMDCs / for high-throughput)
 - Designing and manufacturing of *in-situ* ALD tool with work function and thickness measurement (*in-situ* ALD with kelvin probe, ellipsometry, QCM, etc.)
 - Comprehensive understanding and experiences of vacuum system maintenance and replacement

- (vacuum systems, mass flow controllers, exhaust treatment, and leak detection methods as they pertain to atomic vapor deposition reactors)
- Safety precautions for the operation and maintenance of systems that utilize toxic and explosive gas (design and construction of scrubber and gas lines)

■ Ex-situ Film Analytical Equipment

- XPS, XRD, XRR, SEM with EDS, AFM, SIMS, OES, FT-IR with TR and ATR, contact angle measurement, ultraviolet-visible spectrophotometer (UV-Vis), spectroscopic ellipsometry (SE), and Raman analysis
- Synchrotron radiation experiments with simulation (Pohang Acceleration Laboratory 3D Beamline)
- Electrical characterization of device with C-V, I-V, 4-point probe, and Hall measurement

■ Software Tools

- **LabVIEW** for software development, ImageJ, MATLAB, and Gatan Microscopy Suite (Certified LabVIEW Associate Developer (CLAD) from National Instrument (2012 – 2014)
- Rhinoceros and Sketchup for 3D modeling, and Keyshot and V-ray for 3D rendering ([Examples](#))

RESEARCH & PROFESSIONAL EXPERIENCE

- Mar. 2018 – Oct. 2019: **Post-doc Researcher.** Electrical & Electronic Engineering, Yonsei University

■ Research Project:

- “Development on precursors for carbon/halogen-free thin film and their delivery system for high-k/metal gate application” – Academic collaboration w/ **Hansol Chemical**
- “Precursor evaluation for ALD synthesis of hydrogen-less SiN_x” – Academic collaboration w/ **Air Liquide**
- “Hydrophobic SiO_x deposition by using ALD” – Academic collaboration w/ **Wonik Materials**
- “Area-selective ALD (AS-ALD) using SiO_x as an Inhibitor”
- “Vapor phase synthesis of metal-organic-framework (MOF) for highly efficient energy application”

- Mar. 2011 – Feb. 2018: **Research Assistant.** Electrical & Electronic Engineering, Yonsei University

■ Research Project:

- “Transparent Conductive Oxides (TCOs) deposition by using ALD” – w/ **LG Electronics** (2011)
- “Manufacture of ALD Apparatus for Low Temperature Process and High Throughput”- w/ **National Research Fund (NRF) of Korea** (2011 – 2013)
- “Evaluation of High-throughput ALD Apparatus” – w/ **MTS Nanotech** (2013)
- “Cu gate thin film transistor (TFT) fabrication” – w/ **LG Display** (2013 – 2014)
- “Low temperature ALD Al₂O₃ for OLED encapsulation” – w/ **LG Display** (2014 – 2015)
- “ALD-related Research” ([cannot be opened because of NDA](#)) – w/ **Samsung Electronics Semiconductor R&D Center** (2015 – 2017)
- “Precursor evaluation for low temperature ALD SiO₂ & SiN_x for hard mask applications” – w/ **Wonik Materials** (2016 – 2018)
- “Hydrogen barrier using ALD Al₂O₃” – w/ **LG Display** (2017)
- “CVD/ALD-based interconnect and diffusion barrier development using transition metal” – Academic collaboration w/ **Dow Chemical**

- Sep. 2010 – Jun. 2012: **Teaching Assistant.** Electrical & Electronic Engineering, Yonsei University

■ Class:

“Semiconductor and Display Experiments” Spring 2012, Spring 2013, Spring 2014
“Semiconductor Physics” Fall 2011, “Junior Seminar: Modern physics” Fall 2010

SCOLARSHIP, HONOR, AND AWARDS

- Brain Korea 21 Plus (BK21 Plus) Fellowship (National Research Fund (NRF) of Korea), Mar. 2018 – Current
- Sponsorship Program at Samsung Electronics Semiconductor R&D Center, Mar. 2017 – May. 2018
- Best Presentation Award, The 23rd Korean Conference on Semiconductors (KCS 2016), Feb. 2016
- National Scholarship for Science and Engineering, 2007 – 2008

PUBLICATIONS (total citation: 2029, h index: 13, i10-index: 18) (as of 2022/10/11)

1. “Unveiling Effect of Hydrogen Bond on Atomic Layer Deposition using Alkoxide Precursor and Role of Ligand Substitution as Inhibitor”

Hwi Yoon, Yujin Lee, Ga Yeon Lee, Sanghun Lee, Seunggi Seo, Sangyoon Lee, **Taewook Nam**, Sungmin Park, Bo Keun Park, Taek-Mo Chung, Seung-min Chung, and Hyungjun Kim
Submitted

2. “Growth mechanism and electrical properties of tungsten films deposited by plasma-enhanced atomic layer deposition with chloride and metal organic precursors”

Yujin Lee, Seunggi Seo, **Taewook Nam**, Hyunho Lee, Hwi Yoon, Sangkyu Sun, Il-Kwon Oh, Sanghun Lee, Bonggeun Shong, Jin Hyung Seo, Jang Hyeon Seok, and Hyungjun Kim
[Applied Surface Science \(2021\) 568, 150939](#)

3. (Selected as a cover) “Hydrogen Barrier based on Chemical Trapping using Chemically-modulated Al₂O₃ grown by Atomic Layer Deposition for InGaZnO Thin Film Transistor”

Yujin Lee[#], **Taewook Nam**[#], Seunggi Seo, Hwi Yoon, Chong Hwon Lee, Hyukjoon Yoo, Hyun Jae Kim, Wonjun Choi, Seongil Im, Joon Young Yang, Dong Wook Choi, Choongkeun Yoo, Ho-jin Kim, and Hyungjun Kim
[#]These authors contributed equally.
[ACS Applied Materials & Interfaces, 2021, 13, 17, 20349-20360.](#)

4. “Two-Dimensional MoS₂ Charge Injection Memory Transistors Utilizing Hetero-stack SiO₂/HfO₂ Dielectrics and Oxide Interface Traps”

Livia Janice Widiapradja[#], **Taewook Nam**[#], Heesun Bae, Yeonsu Jeong, Hye-Jin Jin, Yangjin Lee, Kwanpyo Kim, Sangyoon Lee, Hyungjun Kim, and Seongil Im
[#]These authors contributed equally.
[Advanced Electronic Materials, 2021, 2100074](#)

5. “MoS₂ Doping by Atomic Layer Deposition of High-k Dielectrics using Alcohol as Process Oxidants”
Whang Je Woo, Seunggi Seo, **Taewook Nam**, Youngjun Kim, Donghyun Kim, Jeong-Gyu Song, Jun Hyung Lim, Hyung-Jun Kim, and Hyungjun Kim

[Applied Surface Science, 541 \(2021\) 148504](#)

6. (Invited paper) (Selected as a Featured Article) “Atomic layer deposition of a uniform thin film on 2-dimensional transition metal dichalcogenides”

Taewook Nam, Seunggi Seo, and Hyungjun Kim
[Journal of Vacuum Science and Technology A, 38, 030803 \(2020\)](#)

7. "Comparative Study on Atomic Layer Deposition of HfO₂ via Substitution of Ligand Structure with Cyclopentadiene"
Sungmin Park,^{a#} Bo-Eun Park,^{a#} Hwi Yoon,^a Sanghun Lee,^a **Taewook Nam**,^a Taehoon Cheon,^b SooHyun Kim,^b Hwansung Cheon,^c Sangkyun Im,^c Taegeun Seong^c and Hyungjun Kim^{a*}
[Journal of Materials Chemistry C \(2020\), 8, 1344-1352](#)
8. (Invited paper) "Atomic layer deposition for nonconventional nanomaterials and their applications"
Taewook Nam and Hyungjun Kim*
[Journal of Materials Research 35, 656-680 \(2020\)](#)
9. "Moisture Barrier Properties of Low-temperature ALD Al₂O₃ using Various Oxidants"
Taewook Nam, Haksoo Lee, Sung Min Cho, Bonggeun Shong, Hyungjun Kim, and Han-Bo-Ram Lee
[Ceramics International \(2019\), 45, 19105-19112](#)
10. "Hydrogen Barrier Performance of Lanthanum Oxide Deposited by Reactive Magnetron Sputtering"
Yujin Lee, Chong Hwon Lee, **Taewook Nam**, Sanghun Lee, et al.
[Journal of Material Science \(2019\) 54: 11145](#)
11. "Low-temperature, High-growth-rate ALD of SiO₂ using Novel Aminodisilane Precursor"
Taewook Nam, Hyunho Lee, Taejin Choi, Seunggi Seo, Chang Mo Yoon et al.
[Applied Surface Science, 485 \(2019\) 381-390](#)
12. "Molecular oxidation of surface -CH₃ during atomic layer deposition of Al₂O₃ with H₂O, H₂O₂, and O₃: A theoretical study",
Seunggi Seo, **Taewook Nam**, Han-Bo-Ram Lee, Hyungjun Kim, and Bonggeun Shong
[Applied Surface Science, 457 \(2018\) 376-380](#)
13. "High-Performance Ink-Synthesized Cu-Gate Thin-Film Transistor with Diffusion Barrier Formation"
Whang Je Woo, **Taewook Nam**, Il-Kwon Oh, Wanjoon Maeng, and Hyungjun Kim
[Metals and Materials International, 24 \(2018\) 652-656](#)
14. "Cobalt titanium nitride amorphous metal alloys by atomic layer deposition"
Taewook Nam, Chang Wan Lee, Taehoon Cheon, Woo Jae Lee, Soo-Hyun Kim, Se-Hun Kwon, and Hyungjun Kim
[Journal of Alloys and Compounds 737 \(2018\) 684-692](#)
15. "Surface-Localized Sealing of Porous Ultralow-k Dielectric Films with Ultrathin (< 2 nm) Polymer Coating"
Seong Jun Yoon, Kwanyong Pak, **Taewook Nam**, Alexander Yoon, Hyungjun Kim, Sung Gap Im, and Byung Jin Cho
[ACS nano, 2017, 11 \(8\), 7841-7847](#)
16. "A composite layer of atomic-layer-deposited Al₂O₃ and graphene for flexible moisture barrier"
Taewook Nam, Yong Ju Park, Haksoo Lee, Il-Kwon Oh, Jong-Hyun Ahn, Sung Min Cho, Hyungjun Kim, and Han-bo-ram Lee
[Carbon 116 \(2017\) 553-561](#)
17. "Effects of TaN Diffusion Barrier on Cu-Gate ZnO: N Thin-Film Transistors"
Whang Je Woo, **Taewook Nam**, Hanearl Jung, Il-Kwon Oh, Jeong-Gyu Song, Wanjoon Maeng, and

Hyungjun Kim

[IEEE Electron Device Letters 37 \(5\), 599-602 \(2016\)](#)

18. "High-performance Alternating Current Electroluminescent Layers Solution Blended with Mechanically and Electrically Robust Nonradiating Polymers"

Seong Soon Jo, Sung Hwan Cho, Hae Jin Kim, **Taewook Nam**, Ihn Hwang, et al.

[Journal of Polymer Science, Part B: Polymer Physics 53 \(2015\) 1629-1640](#)

19. "Growth Characteristics and Properties of Indium Oxide and Indium-doped Zinc Oxide by Atomic Layer Deposition"

Donghyun Kim, **Taewook Nam**, Jusang Park, Julien Gatineau, Hyungjun Kim

[Thin Solid Films 587 \(2015\) 83-87](#)

20. "Growth Characteristics and Properties of Ga-doped ZnO (GZO) Thin Films Grown by Thermal and Plasma-enhanced Atomic Layer Deposition"

Taewook Nam, Chang Wan Lee, Hyun Jae Kim, Hyungjun Kim

[Applied Surface Science 295 \(2014\) 260-265](#)

21. "Graphene as an Atomically Thin Barrier to Cu Diffusion into Si"

Juree Hong, Sanggeun Lee, Seulah Lee, Heetak Han, Chandreswar Mahata, Han-Wool Yeon, Bonwoong Koo, Seong-Il Kim, **Taewook Nam**, Kisik Byun, Byung-Wook Min, Young-Woon Kim, et al.

[Nanoscale, 2014, 6, 7503-7511](#)

22. "Direct Imprinting of MoS₂ Flakes on a Patterned Gate for Nanosheet Transistors"

Kyunghee Choi, Young Tack Lee, Sung-Wook Min, Hee Sung Lee, **Taewook Nam**, Hyungjun Kim and Seongil Im

[Journal of Materials Chemistry C, 2013, 1, 7803](#)

23. "Nanosheet Thickness-modulated MoS₂ Dielectric Property Evidenced by Field-effect Transistor Performance"

Sung-Wook Min, Hee Sung Lee, Hyoung Joon Choi, Min Kyu Park, **Taewook Nam**, Hyungjun Kim, Sunmin Ryu and Seongil Im

[Nanoscale 2013, 5, 548-551](#)

24. "MoS₂ Nanosheet Phototransistors with Thickness-Modulated Optical Energy Gap"

Hee Sung Lee, Sung-Wook Min, Youn-Gyung Chang, Min Kyu Park, **Taewook Nam**, Hyungjun Kim, Jae Hoon Kim, Sunmin Ryu, and Seongil Im

[Nano Letters, 2012, 12 \(7\), pp 3695-3700](#)

25. "Low-temperature Atomic Layer Deposition of TiO₂, Al₂O₃, and ZnO Thin Films"

Taewook Nam, Jae-Min Kim, Min-Kyu Kim, Woo-Hee Kim, Hyungjun Kim

[Journal of the Korean Physical Society, 59 \(2\), 2011, pp. 452-457](#)

26. "The Effects of Ultraviolet Exposure on the Device Characteristics of Atomic Layer Deposited-ZnO:N Thin Film Transistors"

Jae-Min Kim, S. J. Lim, **Taewook Nam**, Doyoung Kim, and Hyungjun Kim

[Journal of The Electrochemical Society, 158 \(5\) J150-J154 \(2011\)](#)

27. "Atomic Layer Deposition ZnO:N Flexible Thin Film Transistors and the Effects of Bending on Device Properties"

Jae-Min Kim, **Taewook Nam**, S. J. Lim, Y. G. Seol, N.-E. Lee, Doyoung Kim, and Hyungjun Kim

[Applied Physics Letters 98, 142113 \(2011\)](#)

PATENTS

1. (KR) "FORMATION OF GALLIUM OXIDE NANOWIRE USING ATOMIC LAYER DEPOSITION"
Hyungjun Kim, **Taewook Nam**
Granted (KR, Pending No. : 10-2012-0063701, Granted No. : 10-1452976)
2. (KR) "METHOD AND APPARATUS FOR FORMING OXIDE THIN FILM"
Hyungjun Kim and **Taewook Nam**
Granted (KR, Pending No. : 10-2015-0037374, Granted No. : 10-1727259)
3. (KR) "THIN FILM SURFACE TREATMENT"
Hyungjun Kim and **Taewook Nam**
Pending (KR, Pending No. : 10-2016-0024539)
4. (US) "METHOD AND APPARATUS FOR FORMING THIN OXIDE FILM"
Hyungjun Kim and **Taewook Nam**
Granted (US, Pending No. : 15/069,842, Granted No. : 9,611,547)
5. (KR) "FORMING METHOD FOR HYDROPHOBIC THIN FILM BASED ON AMINOSILANE PRECURSOR"
Hyungjun Kim and **Taewook Nam**
Pending (KR, Pending No. : 10-2019-0000628)
6. (KR) "METHOD FOR DEPOSITING THIN FILM USING TWO TYPE OF REDUCING AGENTS AND THIN FILM DEPOSITION STRUCTURE THEREOF"
Hyungjun Kim, **Taewook Nam**, and Yujin Lee
Pending (KR, Pending No. : 10-2019-0048208)
- 7.(KR) "METHOD AND APPARATUS FOR AREA SELECTIVE DEPOSITION OF HYDROPHOBIC THIN FILM BASED ON LOW TEMPERATURE ATOMIC LAYER DEPOSITION"
Hyungjun Kim and **Taewook Nam**
Pending (KR, Pending No. : 10-2019-0115891)

CONFERENCE PRESENTATION (INTERNATIONAL)

1. "Low-Temperature Atomic Layer Deposition (LT-ALD) of TiO₂, Al₂O₃, and ZnO thin films for transparent conducting oxides (TCOs) applications"
Taewook Nam, Woo-Hee Kim, Min-Kyu Kim, and Hyungjun Kim
2011 MRS Spring Meeting and Exhibit, California, USA, 2011/4.
2. "Low temperature Atomic Layer Deposition of Al₂O₃ for Microelectronics"
Taewook Nam, Woo-Hee Kim, Min-Kyu Kim, and Hyungjun Kim
The 11th International conference on Atomic Layer Deposition (ALD), Massachusetts, USA, 2011/6.
3. "Growth Characteristics and Films Properties of Ga doped ZnO (GZO) by Low Temperature Atomic Layer Deposition"
Taewook Nam, Won-Seon Lee, Chang Wan Lee, and Hyungjun Kim
American Vacuum Society (AVS) 58th International Symposium & Exhibition, Tennessee, USA, 2011/11.
4. "Studies on Ga doped ZnO (GZO) by Low Temperature Atomic Layer Deposition"

Taewook Nam, Won-Seon Lee, Chang Wan Lee, and Hyungjun Kim
2011 MRS Fall Meeting and Exhibit, Massachusetts, USA, 2011/11.

5. "Investigation of Growth Characteristics and Electronic Properties of In₂O₃ and In doped ZnO by Atomic Layer Deposition"

Donghyun Kim, **Taewook Nam**, and Hyungjun Kim

International Conference on Microelectronics and Plasma Technology (ICMPT) 2014, Gunsan, Korea, 2014/07.

6. "Bias Temperature Stress Tests on Cu Gate TFT with Al₂O₃ and HfO₂ gate Insulators and TaN Diffusion Barrier"

Whang je Woo, **Taewook Nam**, Haneral Jung, Il-Kwon Oh, and Hyungjun Kim

The 14th International Meeting on Information Display (iMiD) 2014, Daegu, Korea, 2014/08.

7. "Growth and Reduction Characteristics of ALD Nickel Oxide (NiO) using HPN Precursor"

Taewook Nam, and Hyungjun Kim

Atomic Layer Deposition (ALD) 2016, Dublin, Ireland, 2016/07.

8. "Characterization of Atomic Layer Deposited Nickel Oxide (NiO) by using HPN Precursor"

Taewook Nam, Donghyun Kim, Seungmin Yeo, Soo-hyun Kim, and Hyungjun Kim

The 20th International Vacuum Congress (IVC-20), Busan, Korea, 2016/08.

9. "Effects of Aminodisilane Precursor on Ozone-based Low-temperature Atomic Layer Deposition of SiO₂"

Taewook Nam, Hyunho Lee, Taejin Choi, Seunggi Seo, Chang Mo Yoon, Yunjung Choi, Heonjong Jeong, Hima K. Lingam, Venkateswara R. Chitturi, Andrey Korolev, Jong-Hyun Ahn, and Hyungjun Kim*

The 4th International Conference on ALD Applications & 2018 China ALD Conference, Shenzhen, China, 2018/10.

10. "Hydrophobic SiO_x Thin Film Deposition using Low-Temperature Atomic Layer Deposition"

Taewook Nam, and Hyungjun Kim

International Conference on Atomic Layer Deposition (ALD 2019), Bellevue, Washington, USA, 2019/07.

11. "Area-Selective Deposition Using Atomic-Layer-Deposited Carbon, Fluorine-Free SiO_x as an Inhibitor"

Taewook Nam, Inkyu Sohn, Tatsuya Nakazawa, and Hyungjun Kim

2019 Materials Research Society (MRS) Fall Meeting & Exhibit, Boston, Massachusetts, USA, 2019/12

12. "Thermal Atomic Layer Etching of Zinc Sulfide Using Sequential Al(CH₃)₃ and HF Exposures"

Taewook Nam, Jonathan L. Partridge, Jessica A. Murdzek, and Steven M. George

The 22nd International Conference on Atomic Layer Deposition (ALD 2022), Ghent, Belgium, 2022/06.

CONFERENCE PRESENTATION (DOMESTIC)

1. "Low-Temperature Atomic Layer Deposition (LT-ALD) of TiO₂, Al₂O₃, and ZnO thin films for transparent conducting oxides (TCOs) applications"

Taewook Nam, Jae-Min Kim, And Hyungjun Kim

The 18th Korean Conference on Semiconductors, Jeju, Korea, 2011/2

2. "Ga doped ZnO (GZO) by atomic layer deposition for Transparent Conducting Oxides"
Taewook Nam, Won-Seon Lee, Chang Wan Lee, and Hyungjun Kim
The 19th Korean Conference on Semiconductors, Seoul, Korea, 2012/2.
3. "Thickness Controlled, Exfoliated MoS₂ Transistors with High-k Dielectrics"
Wonseon Lee, Jusang Park, **Taewook Nam**, Minkyu Kim, and Hyungjun Kim
The Korean Institute of Metals and Materials Fall Exhibition and Conference, Changwon, Korea, 2012/10.
4. "Growth Characteristics and Electrical Properties of In₂O₃ and In doped ZnO by Atomic Layer Deposition for IZO TFT Applications"
Seonjo Kim, **Taewook Nam**, Wonseon Lee, Jusang Park, and Hyungjun Kim
MRS-K Fall, Kangwon, Korea, 2012/11.
5. "Fabrication of Transferrable Al₂O₃ Nanosheet using Atomic Layer Deposition"
Hanearl Jung, **Taewook Nam**, Il-Kwon Oh, Jae Seung Lee, and Hyungjun Kim
MRS-K Spring, Yeosu, Korea, 2013/5.
6. "Investigation about TaN diffusion barrier properties of Cu gate TFT with Al₂O₃ and HfO₂ gate insulator", Donghyun Kim, Whang Je Woo, **Taewook Nam**, Hanearl Jung, and Hyungjun Kim
MRS-K FALL, Changwon, Korea, 2014/5.
7. "Atomic layer deposition (ALD) Al₂O₃ as a moisture barrier for organic light emitting diode (OLED)"
Taewook Nam, Donghyun Kim, and Hyungjun Kim
2014 MRS Korea (MRS-k), Daejeon Convention Center (DCC), Korea, 2014/11.
8. "Improved Electrical Properties in Cu gate TFT with Oxide Semiconductor by using TaN Diffusion Barrier"
Whang Je Woo, **Taewook Nam**, Hanearl Jung, Il-Kwon Oh, and Hyungjun Kim
International Technical Conference on Circuits Systems, Computers and Communications (ITC-CSCC), Seoul, Korea, 2015/6.
9. "Atomic Layer Deposition of Cobalt-based Bifunctional Layer for Cu Interconnect"
Taewook Nam, Soohyeon Kim, Chang Wan Lee, Daewon Hong, Oh Joong Kwon, Han-Bo-Ram Lee, and Hyungjun Kim
2015 Advanced Metallization Conference Plus (ADMETA Plus) 25th Asian Session, Seoul, Korea, 2015.9.
10. (BEST POSTER AWARD) "Cobalt Titanium Nitride Grown by Atomic Layer Deposition as a Diffusion Barrier for Cu Interconnect"
Taewook Nam, Soohyeon Kim, Chang Wan Lee, Daewon Hong, Han-Bo-Ram Lee, and Hyungjun Kim
The 23rd Korean Conference on Semiconductors (KCS 2016), Seoul, Korea, 2016/02.
11. "Improvements in Ink-synthesized Cu-gate Thin Film Transistor with TaN Diffusion Barrier"
Whang Je Woo, **Taewook Nam**, and Hyungjun Kim
The 23rd Korean Conference on Semiconductors (KCS 2016), Seoul, Korea, 2016/02.
12. "Characteristics of Ink-synthesized Cu-gate Thin Film Transistor with Diffusion Barrier"
Whang Je Woo, **Taewook Nam**, Hanearl Jung, and Hyungjun Kim
2016 MRS Korea (MRS-k) Spring, Yeosu, Korea, 2016/05.

Journal Review Activities

Chemistry of Materials

ACS Applied Materials & Interfaces

Journal of Electrical Engineering & Technology