

Publications using the Film Sense FS-1 Ellipsometer

updated Feb. 19, 2019

In Situ, ALD

A Three-Step Atomic Layer Deposition Process for SiN_x Using Si₂Cl₆, CH₃NH₂, and N₂ Plasma

- Reference: ACS Appl. Mater. Interfaces 2018, 10, 19153–19161 (<https://doi.org/10.1021/acsami.8b01392>)
- Authors: Rafaiel A. Ovanesyan, Dennis M. Hausmann, Sumit Agarwal
- Institutions: Colorado School of Mines and Lam Research Corporation

Atomic Layer Deposition of SiC_xN_y Using Si₂Cl₆ and CH₃NH₂ Plasma

- Reference: Chem. Mater. 2017, 29, 6269–6278 (<https://doi.org/10.1021/acs.chemmater.7b01358>)
- Authors: Rafaiel A. Ovanesyan, Noemi Leick, Kathryn M. Kelchner, Dennis M. Hausmann, Sumit Agarwal
- Institutions: Colorado School of Mines, Lam Research Corporation

Surface Phenomena During Plasma-Assisted Atomic Layer Etching of SiO₂

- Reference: ACS Appl. Mater. Interfaces 2017, 9, 31067–31075 (<https://doi.org/10.1021/acsami.7b08234>)
- Authors: Ryan J. Gasvoda, Alex W. van de Steeg, Ranadeep Bhowmick, Eric A. Hudson, Sumit Agarwal
- Institutions: Colorado School of Mines, Eindhoven University of Technology, Lam Research Corporation

Electron-enhanced atomic layer deposition of silicon thin films at room temperature

- Reference: J. Vac. Sci. Technol. A 36(1), Jan/Feb 2018 (<https://doi.org/10.1116/1.5006696>)
- Authors: Jaclyn K. Sprenger, Huaxing Sun, Andrew S. Cavanagh, Steven M. George
- Institution: University of Colorado, Boulder

Electron-Enhanced Atomic Layer Deposition of Boron Nitride Thin Films at Room Temperature and 100 °C

- Reference: J. Phys. Chem. C 2018, 122, 9455–9464 (<https://doi.org/10.1021/acs.jpcc.8b00796>)
- Authors: Jaclyn K. Sprenger, Huaxing Sun, Andrew S. Cavanagh, Alexana Roshko, Paul T. Blanchard, Steven M. George
- Institutions: University of Colorado, Boulder, National Institute of Standards and Technology, Boulder, Colorado

Electron Enhanced Growth of Crystalline Gallium Nitride Thin Films at Room Temperature and 100 °C Using Sequential Surface Reactions

- Reference: Chem. Mater. 2016, 28, 5282–5294 (<https://doi.org/10.1021/acs.chemmater.6b00676>)
- Authors: Jaclyn K. Sprenger, Andrew S. Cavanagh, Huaxing Sun, Kathryn J. Wahl, Alexana Roshko, Steven M. George
- Institutions: University of Colorado, Boulder, Naval Research Laboratory, National Institute of Standards and Technology, Boulder, Colorado

Topographically selective deposition

- Reference: Appl. Phys. Lett. 114, 043101 (2019) (<https://doi.org/10.1063/1.5065801>)
- Authors: A. Chaker, C. Vallee, V. Pesce, S. Belahcen, R. Vallat, R. Gassilloud, N. Posseme, M. Bonvalot, A. Bsiesy
- Institutions: University Grenoble Alpes, CEA, LETI, Minatec Campus

Texture and phase variation of ALD PbTiO₃ films crystallized by rapid thermal anneal

- Reference: J. Vac. Sci. Technol. A 37(2), Mar/Apr 2019 (<https://doi.org/10.1116/1.5080226>)
- Authors: Nicholas A. Strnad, Daniel M. Potrepka, Jeffrey S. Pulskamp, Yang Liu, Jacob L. Jones, Raymond J. Phaneuf, Ronald G. Polcawich
- Institutions: University of Maryland, General Technical Services, LLC, U.S. Army Research Laboratory, North Carolina State University

Plasma-Enhanced Atomic Layer Deposition of Ruthenium using Ru(EtCp)₂ & O₂-Plasma on Platinum

- Reference: ALD2018 Poster
- Authors: G. B. Rayner, Jr., B. Johs, B. Liu, N. O'Toole, D. M. Potrepka
- Institutions: Kurt J. Lesker Company, Film Sense, Pennsylvania State University, U. S. Army Research Laboratory

Investigation of Oxygen Incorporation During TiN PEALD by In-Situ Ellipsometry

- Reference: UGIM 2018 Poster
- Authors: Bruce Rayner, Noel O'Toole, Blaine Johs
- Institutions: Kurt J. Lesker Company, Film Sense

Installation of an FS-1 in situ Ellipsometer on an Atomic Layer Deposition (ALD) System. Part 1. Hardware Considerations

- Vacuum Technology & Coating Magazine, Jan. 2019, page 32 (<https://bt.e-ditionsbyfry.com/publication/?i=556398&ver=html5&p=32>)
- Authors: Dhruv Shah, Dhananjay I. Patel, Tahereh G. Avval, Nick Allen, Blaine D. Johs, Matthew R. Linford
- Institutions: Brigham Young University, Film Sense

Installation of an FS-1 in situ Ellipsometer on an Atomic Layer Deposition (ALD) System. Part 2. Software Considerations

- Vacuum Technology & Coating Magazine, Feb. 2019, page 33 (<https://digital.vtcmag.com/12727/12108/index.html?page=33>)
- Authors: Dhruv Shah, Dhananjay I. Patel, Tahereh G. Avval, Nick Allen, Blaine D. Johs, Matthew R. Linford
- Institutions: Brigham Young University, Film Sense

In Situ, Liquid Cell

2D graphene oxide channel for water transport

- Reference: Faraday Discuss., 2018, 209, 329–340 (<https://doi.org/10.1039/c8fd00026c>)
- Authors: Baoxia Mi, Sunxiang Zheng, Qingsong Tu
- Institution: University of California, Berkeley

Regenerable Polyelectrolyte Membrane for Ultimate Fouling Control in Forward Osmosis

- Reference: Environ. Sci. Technol. 2017, 51, 3242–3249 (<https://doi.org/10.1021/acs.est.6b05665>)
- Authors: Yan Kang, Sunxiang Zheng, Casey Finnerty, Michael J. Lee, Baoxia Mi
- Institutions: University of Maryland, University of California, Berkeley

Swelling of Graphene Oxide Membranes in Aqueous Solution: Characterization of Interlayer Spacing and Insight into Water Transport Mechanisms

- Reference: ACS Nano 2017, 11, 6440–6450 (<https://doi.org/10.1021/acsnano.7b02999>)
- Authors: Sunxiang Zheng, Qingsong Tu, Jeffrey J. Urban, Shaofan Li, Baoxia Mi
- Institutions: University of California, Berkeley, Lawrence Berkeley National Laboratory

Understanding the pH-responsive behavior of graphene oxide membrane in removing ions and organic micropollutants

- Reference: Journal of Membrane Science 541 (2017) 235–243 (<https://doi.org/10.1016/j.memsci.2017.07.005>)
- Authors: Yoontaek Oh, Dana L. Armstrong, Casey Finnerty, Sunxiang Zheng, Meng Hu, Alba Torrents, Baoxia Mi
- Institutions: University of Maryland, University of California, Berkeley

Ex Situ, ALD Films

Effect of growth temperature on AlN thin films fabricated by atomic layer deposition

- Reference: Ceramics International 44 (2018) 17447–17452 (<https://doi.org/10.1016/j.ceramint.2018.06.212>)
- Authors: Yong Kim, Min Soo Kim, Hee Ju Yun, Sung Yeon Ryu, Byung Joon Choi
- Institution: Seoul National University of Science and Technology

Characteristics of atomic layer deposited Gd₂O₃ on n-GaN with an AlN layer

- Reference: RSC Adv., 2018, 8, 42390 (<https://doi.org/10.1039/c8ra09708a>)
- Authors: Hogyong Kim, Hee Ju Yun, Byung Joon Choi
- Institution: Seoul National University of Science and Technology

AlN passivation effect on Au/GaN Schottky contacts

- Reference: Thin Solid Films 670 (2019) 41–45 (<https://doi.org/10.1016/j.tsf.2018.12.008>)
- Authors: Hogyong Kim, Yurim Kwon, Byung Joon Choi
- Institution: Seoul National University of Science and Technology

Thickness Dependence on Interfacial and Electrical Properties in Atomic Layer Deposited AlN on c-plane GaN

- Reference: Nanoscale Research Letters (2018) 13:232 (<https://doi.org/10.1186/s11671-018-2645-8>)
- Authors: Hogyong Kim, Hee Ju Yoon, Byung Joon Choi
- Institution: Seoul National University of Science and Technology

Metallic indium segregation control of InN thin films grown on Si(1 0 0) by plasma-enhanced atomic layer deposition

- Reference: Results in Physics 12 (2019) 804–809 (<https://doi.org/10.1016/j.rinp.2018.12.023>)
- Authors: Yunlai An, Yingfeng He, Huiyun Wei, Sanjie Liu, Meiling Li, Yimeng Song, Peng Qiu, Abdul Rehman, Xinhe Zheng, Mingzeng Peng
- Institution: University of Science and Technology Beijing

Atomic layer deposition of cobalt(II) oxide thin films from Co(BTSA)₂(THF) and H₂O

- Reference: J. Vac. Sci. Technol. A 37(1), Jan/Feb 2019 (<https://doi.org/10.1116/1.5066638>)
- Authors: Tomi Iivonen, Mikko Kaipio, Timo Hatanpää, Kenichiro Mizohata, Kristoffer Meinander, Jyrki Räisänen, Jiyeon Kim, Mikko Ritala, Markku Leskelä
- Institutions: University of Helsinki, Ruhr-University Bochum

Atomic Layer Deposition of Molybdenum and Tungsten Oxide Thin Films Using Heteroleptic Imido-Amidinato Precursors: Process Development, Film Characterization, and Gas Sensing Properties

- Reference: Chem. Mater. 2018, 30, 8690–8701 (<https://doi.org/10.1021/acs.chemmater.8b04129>)
- Authors: Miika Mattinen, Jan-Lucas Wree, Niklas Stegmann, Engin Ciftiyurek, Mhamed El Achhab, Peter King, Kenichiro Mizohata, Jyrki Raisänen, Klaus D. Schierbaum, Anjana Devi, Mikko Ritala, Markku Leskelä
- Institutions: University of Helsinki, Ruhr-University Bochum, University Düsseldorf

Diamine Adduct of Cobalt(II) Chloride as a Precursor for Atomic Layer Deposition of Stoichiometric Cobalt(II) Oxide and Reduction Thereof to Cobalt Metal Thin Films

- Reference: Chem. Mater. 2018, 30, 3499–3507 (<https://doi.org/10.1021/acs.chemmater.8b01271>)
- Authors: Katja Väyrynen, Timo Hatanpää, Miika Mattinen, Mikko Heikkilä, Kenichiro Mizohata, Kristoffer Meinander, Jyrki Raisänen, Mikko Ritala, Markku Leskelä
- Institution: University of Helsinki

Atomic layer deposition of crystalline molybdenum oxide thin films and phase control by post-deposition annealing

- Reference: Materials Today Chemistry 9 (2018) 17-27 (<https://doi.org/10.1016/j.mtchem.2018.04.005>)
- Authors: Miika Mattinen, Peter J. King, Leonid Khriachtchev, Mikko J. Heikkilä, Ben Fleming, Simon Rushworth, Kenichiro Mizohata, Kristoffer Meinander, Jyrki Raisanen, Mikko Ritala, Markku Leskelä
- Institutions: University of Helsinki, EpiValence Ltd

Low-Temperature Wafer-Scale Deposition of Continuous 2D SnS₂ Films

- Reference: Small 2018, 14, 1800547 (<https://doi.org/10.1002/sml.201800547>)
- Authors: Miika Mattinen, Peter J. King, Leonid Khriachtchev, Kristoffer Meinander, James T. Gibbon, Vin R. Dhanak, Jyrki Räisänen, Mikko Ritala, Markku Leskelä
- Institutions: University of Helsinki, University of Liverpool

Ex Situ, Other Films

Measuring thickness in thin NbN films for superconducting devices

- Reference: submitted (<https://doi.org/10.13140/RG.2.2.21500.39042>)
- Authors: O Medeiros, M Colangelo, I Charaev, K K Berggren
- Institutions: Massachusetts Institute of Technology, Wentworth Institute of Technology

Optically-Monitored Nanopore Fabrication Using a Focused Laser Beam

- Reference: Scientific REPORTS | (2018) 8:9765 (<https://doi.org/DOI:10.1038/s41598-018-28136-z>)
- Authors: Tal Gilboa, Adam Zreben, Arik Girsault, Amit Meller
- Institution: The Technion – Israel Institute of Technology

Layer-by-Layer Assemblies of Coordinative Surface-Confined Electroactive Multilayers: Zigzag vs Orthogonal Molecular Wires with Linear vs Molecular Sponge Type of Growth

- Reference: J. Phys. Chem. C 2018, 122, 3419–3427 (<https://doi.org/10.1021/acs.jpcc.7b10900>)
- Authors: Jade Poisson, Heather L. Geoffrey, Iraklii I. Ebralidze, Nadia O. Laschuk, Jesse T. S. Allan, Alexandra Deckert, E. Bradley Easton, Olena V. Zenkina
- Institution: University of Ontario Institute of Technology

Measurement of Ferroelectric Films in MFM and MFIS Structures

- Reference: Thesis, ProQuest Number: 10619120
- Author: Jackson D. Anderson
- Institution: Rochester Institute of Technology