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Professor Sean Thomas Barry

Correspondence language: English

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The primary information is denoted by (*)

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Professor Sean Barry

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes

Degrees

- 1996/5 Doctorate, Inorganic Chemistry, University of Ottawa
- 1991/5 Bachelor's, Chemistry, Queen's University at Kingston

User Profile

Research Specialization Keywords: Atomic Layer Deposition (ALD), Chemical Vapour Deposition (CVD), Ligand Design, Materials Chemistry, Surface Chemistry, Synthetic Chemistry, Thermal Characterization

Employment

2022/7	Chair Chemistry, Carleton University Full-time, Professor Tenure Status: Tenure I oversee the department's academic and administrative functions. I lead curriculum development, faculty recruitment, scheduling, and budgeting. I foster collaboration and ensure compliance with institutional and regulatory standards, enhancing the department's academic reputation, as well as teaching and research outcomes.
2016/5	Professor Chemistry, Carleton University Full-time, Professor Tenure Status: Tenure
2016/7 - 2016/12	Visiting Professor IFM, Linköping University Full-time, Visiting Professorship, Professor Tenure Status: Tenure sabbatical
2007/11 - 2016/4	Associate Professor Chemistry, Carleton University Full-time, Associate Professor Tenure Status: Tenure

2009/7 - 2010/6	Visiting Professor Inorganic Chemistry, University of Helsinki Full-time, Visiting Professorship, Associate Professor Tenure Status: Tenure sabbatical
2003/7 - 2007/10	Assistant Professor Chemistry, Carleton University Full-time, Assistant Professor Tenure Status: Tenure Track
2002/7 - 2003/7	Visiting Researcher Chemistry and Chemical Biology, Harvard University Full-time, Term Tenure Status: Non Tenure Track Synthetic inorganic chemistry in a research lab as well as co-teaching a first year, physical chemistry course
2000/9 - 2002/8	Lecturer Chemistry, University of Ottawa Full-time, Term, Lecturer Tenure Status: Non Tenure Track Taught several courses in chemistry, including first year chemistry, all the way to a graduate course in main group chemistry. Undertook research in the lab of Darrin Richeson during this time as well.
1998/9 - 2000/8	Post-Doctoral Fellow Chemistry and Chemical Biology, Harvard University Full-time, Term Tenure Status: Non Tenure Track Studied under Prof. Roy Gordon
1997/7 - 1998/8	Post-Doctoral Fellow Material Science and Engineering, Cornell University Full-time, Term Tenure Status: Non Tenure Track Studied under Prof. Arthur Ruoff
1996/9 - 1997/2	Post-Doctoral Fellow Chemistry, Universite de Bourgogne Full-time, Term Tenure Status: Non Tenure Track Studied under Prof. Rinaldo Poli

Research Funding History

Awarded [n=8]

2024/1 - 2027/12 Principal Applicant	New Vapor Phase Precursors for Group 3 Silicide and Germanide Thin Films, Grant Funding Sources: Semiconductor Research Corporation (SRC) Nanomanufacturing Materials and Processes Total Funding - 373,114 Portion of Funding Received - 123,371 Funding Competitive?: Yes
2023/9 - 2025/8	Molybdenum Based Precursors for Atomic Layer Deposition, Contract

Principal Investigator	Funding Sources: SK hynix Total Funding - 260,000 Portion of Funding Received - 260,000 Funding Competitive?: Yes
2021/5 - 2025/4 Principal Investigator	Low Valent Mid Transition Metal Precursors for Atomic Layer Deposition, Contract Funding Sources: Lam Research Corporation Total Funding - 650,000 Portion of Funding Received - 80 Funding Competitive?: Yes
2019/5 - 2025/4 Principal Applicant	New Metallization Precursors for Microelectronic applications, Grant Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Total Funding - 240,000 Portion of Funding Received - 48,000 Funding Competitive?: Yes
2020/9 - 2024/12 Collaborator	Protection of Metallic Surfaces from Bulk to Nano Through Molecular-level Innovation, Grant Funding Sources: Social Sciences and Humanities Research Council of Canada (SSHRC) New Frontiers in Research Fund Total Funding - 24,000,000 Portion of Funding Received - 137,000 Funding Competitive?: Yes
2021/1 - 2023/12 Principal Investigator	Open Shell organic Compounds for Radical Enhanced Atomic Layer Deposition, Contract Funding Sources: ASM Corporation Total Funding - 130,000 Portion of Funding Received - 100 Funding Competitive?: Yes
2020/3 - 2022/2 Principal Applicant	Molecular Layer Deposition (MLD) of CapturePhos - A Barrier for Flexible Electronics, Grant Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Collaborative Research and Development Total Funding - 206,400 Portion of Funding Received - 51,600 Funding Competitive?: Yes Co-applicant : Cathleen Crudden; Paul Ragogna
2018/11 - 2019/10 Co-investigator	Thin Films of Phosphane-ene Polymers by Atomic Layer Deposition, Contract Funding Sources: Solvay Total Funding - 100,000 Portion of Funding Received - 0 Funding Competitive?: No Co-investigator : Paul Ragogna

Completed [n=5]

2019/10 - 2020/9 Principal Applicant	Radical Enhanced Atomic Layer Deposition in a Thermal Process: Stable Radicals as Second Precursors, Scholarship Funding Sources: LAM Research Corporation Unlock Ideas Total Funding - 25,000 Portion of Funding Received - 25,000 Funding Competitive?: Yes
2018/9 - 2019/8 Principal Investigator	Tungsten and Molybdenum Precursor Development for Microelectronic Applications, Grant Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) 2018 Development Grant Total Funding - 10,000 Portion of Funding Received - 10,000 Funding Competitive?: Yes
2017/5 - 2019/4 Principal Investigator	Atomic Layer Deposition Tool – Testing and Process Development, Grant Funding Sources: Mathematics of Information Technology and Complex Systems (MITACS) Elevate Total Funding - 125,000 Portion of Funding Received - 125,000 Funding Competitive?: Yes
2014/5 - 2019/4 Principal Investigator	Gold Films by Atomic Layer Deposition: Precursor Design, Synthesis, Evaluation and Optimization in Deposition, Grant Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grants Total Funding - 170,000 Portion of Funding Received - 102,000 Funding Competitive?: Yes
2018/7 - 2018/12 Principal Applicant	Copper and Molybdenum CVD Processes to Deposit Laminate Stacks for Heat Dissipation, Grant Funding Sources: Ontario Center of Excellence (OCE) Voucher for Innovation and Productivity Total Funding - 25,000 Portion of Funding Received - 25,000 Funding Competitive?: Yes

Student/Postdoctoral Supervision

Bachelor's [n=5]

2023/9 - 2024/4 Principal Supervisor	Aaron Rogers (Completed) , Carleton University Thesis/Project Title: Thermal Characterization and Mechanistic Studies of Molybdenum Compounds Present Position: graduate student, Carleton University
2023/9 - 2024/8 Principal Supervisor	Marshall Atherton (Completed) , Carleton University Thesis/Project Title: Area Selective Deposition of a Fluorinated Isonitrile on Metal Patterned Silica Substrates Present Position: graduate student, Carleton University
2023/5 - 2024/4 Principal Supervisor	Gabrielle Larrivee (Completed) , Carleton University Thesis/Project Title: Protection of Metallic Surfaces from Bulk to Nano Through Molecular-level Innovation Present Position: graduate student, La Trobe University
2021/9 - 2022/4 Principal Supervisor	Kieran Lawford (Completed) , Carleton University Thesis/Project Title: Decomposition of Lead(II)Bis(N-tert-butyl(trimethylsilyl)amide) to a Novel Cyclic Alkyl Amido Plumblyene Present Position: graduate student, Carleton University
2019/9 - 2020/4 Principal Supervisor	Atila Varga (Completed) , Carleton University Thesis/Project Title: Synthesis of Novel Copper(I) Precursors for Atomic Layer Deposition Present Position: Research Scientist, Independent

Bachelor's Honours [n=9]

2024/5 - 2024/9 Principal Supervisor	Arina Sherstyuk (Completed) , Carleton University Thesis/Project Title: Selective Area Deposition of Ferrocenyl-bearing NHCs on Metal Surfaces Present Position: undergraduate student, Carleton University
2024/5 - 2024/8 Co-Supervisor	Kailey Gallant (Completed) , York University Thesis/Project Title: Hirshfeld Surface Analysis of Precursors: Insights Into Volatility and Melting Point Present Position: undergraduate student, York University
2019/9 - 2020/5 Principal Supervisor	Adriana Raats (Completed) , Carleton University Thesis/Project Title: Group 6 Organometallic and Inorganic Compounds as Potential Precursors For Atomic Layer Deposition Present Position: PhD candidate, University of Ottawa
2019/9 - 2020/5 Principal Supervisor	Alexi Zuniga (Completed) , Carleton University Thesis/Project Title: Group 13 Hydrides as Potential Precursors for Atomic Layer Deposition Present Position: Regulatory Affairs Officer, Health Canada
2018/5 - 2019/4 Principal Supervisor	Joeseeph Zurakowski (Completed) , Carleton University Thesis/Project Title: Gold metal surface protection and modification by atomic layer processing Present Position: PhD candidate, Western University

2018/5 - 2020/5 Principal Supervisor	Aya Kadri (Completed) , Carleton University Thesis/Project Title: Organometallic Gold Containing Precursors for Atomic Layer Deposition Present Position: Associate Scientist II (Radiochemistry), Alpha-9 Oncology
2017/9 - 2018/4 Principal Supervisor	Madison Ferguson (Completed) , Carleton University Thesis/Project Title: AreaSelected Deposition of Gold on Silver, and Platinum Nanoparticles, FormingJanus Nanoparticles Present Position: First Responder
2017/9 - 2018/4 Principal Supervisor	Ian Nandrom (Completed) , Carleton University Thesis/Project Title: HETEROLEPTIC GROUP 13IMINOPYRROLIDINATE/ DIMETHYLAMIDO PRECURSORS FOR ATOMIC LAYER DEPOSITION Present Position: Laboratory Technical Officer, Canadian Nuclear Safety Commission
2017/9 - 2018/4 Principal Supervisor	Ryan Goodwin (Completed) , Carleton University Thesis/Project Title: AtomicLayer Deposition of F-doped SnOx Present Position: PhD candidate, Carleton University

Master's Thesis [n=4]

2024/5 - 2026/4 Principal Supervisor	Aaron Rogers (In Progress) , Carleton University Thesis/Project Title: Low Valent Mid Transition Metal Precursors for Atomic Layer Deposition Present Position: graduate student, Carleton University
2023/9 - 2025/12 Principal Supervisor	Marshall Atherton (In Progress) , Carleton University Thesis/Project Title: Thermal Characterization Methods by TGA and DSC Present Position: graduate student, Carleton University
2020/5 - 2022/4 Principal Supervisor	Atila Varga (Completed) , Carleton University Thesis/Project Title: Atomic Layer Deposition to Upgrade Additive Manufacturing Fabrication Present Position: Senior Scientist
2018/5 - 2019/4 Principal Supervisor	Ella Kirkland (Withdrawn) , Carleton University Thesis/Project Title: Novel amide based precursors for semiconductor deposition Present Position: Research Scientist, Canadian Bank Note Company, Limited

Doctorate [n=10]

2023/5 - 2028/4 Principal Supervisor	Dexter Dimova (In Progress) , Carleton University Thesis/Project Title: New Vapor Phase Precursions for Group 3 Silicide and Germanide Thin Films Present Position: graduate student, Carleton University
2023/5 - 2027/4 Principal Supervisor	Kieran Lawford (In Progress) , Carleton University Thesis/Project Title: Low Valent Mid Transition Metal Precursors for Atomic Layer Deposition Present Position: graduate student, Carleton University
2023/5 - 2027/4 Principal Supervisor	Maram Bakiro (In Progress) , Carleton University Thesis/Project Title: MOF fabrication by ALD Present Position: graduate student, Carleton University
2021/5 - 2025/4 Principal Supervisor	Molly Alderman (In Progress) , Carleton University Thesis/Project Title: Low Valent Mid Transition Metal Precursors for Atomic Layer Deposition Present Position: PhD candidate, Carleton University

2020/1 - 2026/9 Principal Supervisor	Eden Goodwin (In Progress) , Carleton University Thesis/Project Title: Reaction Mechanism Monitoring Using Quartz Crystal Microbalance Measurements Present Position: PhD Candidate, Carleton University
2019/1 - 2022/12 Co-Supervisor	David Zanders (Completed) , Carleton University/Bochum University Thesis/Project Title: Cobalt Precursors and Cobalt Containing Films By Atomic Layer Deposition Present Position: Senior Process Engineer, ASM
2018/9 - 2022/8 Principal Supervisor	Michael Land (Completed) , Carleton University Thesis/Project Title: Refractory Metal Precursors and Processes For Atomic Layer Deposition Present Position: PDRA, Dalhousie University
2016/9 - 2020/12 Principal Supervisor	Sydney Buttera (Completed) , Carleton University Thesis/Project Title: Group 13 precursors for ultra-low oxygen content nitride thin films Present Position: Chemist, Canada Border Services Agency
2016/5 - 2020/9 Principal Supervisor	Matthew Griffiths (Completed) , Carleton University Thesis/Project Title: Bimetallic Precursors for Atomic Layer Deposition Present Position: Process Engineer, Lam Research Corporation
2016/1 - 2020/12 Principal Supervisor	Goran Bacic (Completed) , Carleton University Thesis/Project Title: Designing New Atomic Layer Deposition Precursors for Third-Generation Photovoltaics Present Position: Research Scientist, Molecular Modelling, Air Liquide

Post-doctorate [n=6]

2024/7 - 2025/5 Principal Supervisor	Somayeh Norouziyan (In Progress) , Carleton University Thesis/Project Title: Low Valent Mid Transition Metal Precursors for Atomic Layer Deposition Present Position: PDRA, Carleton University
2024/4 - 2025/4 Principal Supervisor	Ga Youn Lee (In Progress) , Carleton University Thesis/Project Title: Molybdenum Based Precursors for Atomic Layer Deposition Present Position: PDRA, Carleton University
2022/11 - 2024/3 Principal Supervisor	Lara Watanabe (Completed) , Carleton University Thesis/Project Title: Molybdenum Based Precursors for Atomic Layer Deposition Present Position: Technical Teaching Staff, University of Guelph
2022/5 - 2024/3 Principal Supervisor	Apoorva Upadhyay (Completed) , Carleton University Thesis/Project Title: Low Valent Mid Transition Metal Precursors for Atomic Layer Deposition Present Position: Senior Chemist, Nfinite Nanotech
2021/5 - 2021/10 Principal Supervisor	Joel Smith (Completed) , Carleton University Thesis/Project Title: Low Valent Mid Transition Metal Precursors for Atomic Layer Deposition Present Position: Process Engineer 4, Lam Research Corporation
2021/1 - 2022/8 Principal Supervisor	Goran Bacic (Completed) , Carleton University Thesis/Project Title: Solar Cell Fabrication by Atomic Layer Deposition Present Position: Research Scientist, Molecular Modelling, Air Liquide

Research Associate [n=1]

2013/9 - 2019/10 Peter Gordon (Completed) , Carleton University
 Principal Supervisor Thesis/Project Title: Development and Scale Up of Precursors for Atomic Layer Deposition
 Present Position: researcher, Carleton University

Event Administration

2024/3 - 2025/6 Technical Program Chair, CSC 2025, Conference, 2025/6 - 2025/6
 2024/4 - 2024/4 Chair, Area Selective Deposition Workshop, Workshop, 2024/4 - 2024/4
 2022/9 - 2023/7 Chair, Organiser, AVS 23rd International Conference on Atomic Layer Deposition, Conference, 2023/7 - 2023/7
 2020/9 - 2021/7 Chair, Organiser, AVS 21st International Conference on Atomic Layer Deposition, Conference, 2021/6 - 2021/6
 2017/9 - 2018/5 Symposium Organiser, Vapor-Surface Chemistry: Mechanisms and Applications, Conference, 2018/5 - 2018/5

Editorial Activities

2017/5 - 2027/4 Advisory Board Member, Chemistry of Materials, Journal

Presentations

1. (2024). Molecular Layer Deposition <?>of MOFs and Alucones. CSC 2024, Winnipeg, Canada
 Main Audience: Researcher
 Invited?: No, Keynote?: No
2. (2023). Small Molecule Inhibition: Ligands and the Surface. EuroCVD 2023, Leuven, Belgium
 Main Audience: Researcher
 Invited?: Yes, Keynote?: No
3. (2023). Area Selective Deposition: Small Molecule Inhibition vs. Inherent Selectivity. 36th International Microprocesses and Nanotechnology Conference, Sapporo, Japan
 Main Audience: Researcher
 Invited?: Yes, Keynote?: No
4. (2023). Design Rules for Precursors <?>and Why You Should Break Them. AVS ALD 2023, Bellevue, United States of America
 Main Audience: Researcher
 Invited?: No, Keynote?: No
5. (2023). Find 10 Differences Between These Precursors: <?>ALD vs ASD Surface Chemistry. Area Selective Workshop, Incheon, Korea, South
 Main Audience: Researcher
 Invited?: Yes, Keynote?: No
6. (2023). Molybdenum Precursors and Deposition Mechanisms. KISM 2023, Busan, Korea, South
 Main Audience: Researcher
 Invited?: Yes, Keynote?: No

7. (2022). Carbenes: Small Molecule Inhibitors for Selectivity for Metal Surfaces. Semiconductor Surface Chemistry, Telluride, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No
8. (2022). Thermally Generated Radical Precursor Compounds for ALD. Swedish Chemical Society Meeting, Linköping, Sweden
Main Audience: Researcher
Invited?: Yes, Keynote?: No
9. (2022). How I Learned to Stop Worrying and Love the Surface. AVS ALD 2022, Ghent, Belgium
Main Audience: Researcher
Invited?: Yes, Keynote?: No
10. (2022). Surface Chemistry: Molybdenum and Cobalt Precursors. Semiconductor Surface Chemistry, Telluride, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No
11. (2022). NHC Carbenes on Surfaces - measuring thermal and surface chemistry. CSC 2022, Calgary, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
12. (2022). ALD on an Optical Fibre: Tilted Fibre Bragg Grating Optical Sensor. Electrochemical Society 2022, Atlanta, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No
13. (2021). Molecular Layer Deposition of Phosphane-ene Polymer Films. AVS 67 Virtual, Ottawa, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
14. (2021). Encapsulating Halide Perovskites: Thin Lead(II) Sulphide Films By ALD. IUPAC | CCCE 2021 Virtual, Ottawa, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
15. (2019). Design Rules for Atomic Layer Deposition Precursors and Why You Should Break Them. Material Research Society Meeting, Boston, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No
16. (2019). Low-Temperature Metal Deposition for Flexible Substrates. 102nd Canadian Chemistry Conference and Exhibition (CCCE 2019), Quebec, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
17. (2019). Fibre Optic Sensors Enabled by Atomic Layer Deposition. Semicon Korea, Seoul, Korea, South
Main Audience: Researcher
Invited?: Yes, Keynote?: No
18. (2019). Studying Decomposition and Surface Chemistry in Atomic Layer Precursors. Korean Atomic Layer Deposition Meeting, Seoul, Korea, South
Main Audience: Researcher
Invited?: Yes, Keynote?: No

19. (2018). Atomic Layer Deposition of Gold Metal: Mechanism and Surface Chemistry. NanoMX2018, Puebla, Mexico
Main Audience: Researcher
Invited?: Yes, Keynote?: No
20. (2018). Can “Solution” Thinking Resolve Surface Problems?. Area Selective Deposition Conference, Raleigh, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No
21. (2018). Forcing Timescale: Can Monolayer Stability Be Built Into a Precursor?. AVS ALD 2018, Incheon, Korea, South
Main Audience: Researcher
Invited?: Yes, Keynote?: No
22. (2018). A toolbox for an all-ALD earth-abundant resonant tunneling junction solar cell. ICMAP 2018, Incheon, Korea, South
Main Audience: Researcher
Invited?: Yes, Keynote?: No
23. (2018). Ligands Guiding Selectivity: Can “Solution” Thinking Resolve Surface Problems?. Canadian Society for Chemistry Conference, Edmonton, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No

Publications

Journal Articles

1. Land, M. A.**; Lawford, K. G.**; Watanabe, L. K.***; Atherton, M.*; Barry, S. T. (2024). Put a Ring on It: Improving the Thermal Stability of Molybdenum Imides through Ligand Rigidification. *Organometallics*. 43: 2381–2386.
Published
Refereed?: Yes, Open Access?: No
2. Lomax, J. T.; Goodwin, E.**; Aloisio, M. D.; Veinot, A. J.; Singh, I.; Shiu, W.-T.; Bakiro, M.**; Bentley, J.; DeJesus, J. F.; Gordon, P. G.****; Liu, L.; Barry, S. T.; Crudden, C. M.; Ragogna, P. J. (2024). Deposition of N-Heterocyclic Carbenes on Reactive Metal Substrates – Applications in Area-Selective Atomic Layer Deposition. *Chem. Mater.* 36: 5500–5507.
Published
Refereed?: Yes, Open Access?: No
3. Rowe, C.; Kashyap, A.; Sharma, G.; Goyal, N.; Alauzun, J. G.; Barry, S. T.; Ravishankar, N.; Soni, A.; Eklund, P.; Pedersen, H.; Ramanath, G. (2024). Nanomolecularly-induced Effects at Titania/Organo-Diphosphonate Interfaces for Stable Hybrid Multilayers with Emergent Properties. *ACS Appl. Nano Mater.* 7: 11225–11233.
Published
Refereed?: Yes, Open Access?: No
4. Land, M. A.**; Dimova, D.*; Robertson, K. N.; Barry, S. T. (2023). Cut-and-Pasting Ligands: The Structure/Function Relationships of a Thermally Robust Mo(VI) Precursor. *J. Vac. Sci. Technol. A*. 41: 012403.
Published
Refereed?: Yes, Open Access?: No

5. Land, M. A.;** Robertson, K. N.; Cyburne, J.; Barry, S. T. (2023). Disturbance of Intermolecular Forces: Eutectics as a New Tool for the Preparation of Vapor-Phase Deposition Precursors. *Phys. Chem. Chem. Phys.*25: 8336-8340.
Published
Refereed?: Yes, Open Access?: No
6. Land, M. A.**; Lomax, J. T.; Barry, S. T. (2023). Low-Temperature, Single-Source, Chemical Vapor Deposition of Molybdenum Nitride Thin Films. *J. Vac. Sci. Technol. A*. 41: 053403.
Published
Refereed?: Yes, Open Access?: No
7. Lomax, J. T.; Goodwin, E.**; Gordon, P. G.****; McGuiness, C.; De Campo, F.; Barry, S. T.; Ragogna, P. J. (2023). Plasma-Enhanced Molecular Layer Deposition of Phosphane–Ene Polymer Films. *Chem. Mater.*35: 1579–1585.
Published
Refereed?: Yes, Open Access?: No
8. Varga, A. C.**; Barry S. T. (2023). Reversible alteration of 3D printed polymer properties via infiltration of alumina by atomic layer deposition. *J. Vac. Sci. Technol. A*. 41: 022403.
Published
Refereed?: Yes, Open Access?: No
9. Lawford, K. G.*; Land, M. A.**; Goodwin, E.**; Robertson, K. N.; Barry, S. T. (2023). Synthesis, Characterization, and Single-Crystal X-ray Structures of Refractory Metal Compounds as Precursors for the Single-Source Chemical Vapor Deposition of Metal Nitrides. *Inorg. Chem.*62: 21061–21073.
Published
Refereed?: Yes, Open Access?: No
10. Land, M. A.**; Băcîc, G.***; Robertson, K. N.; Barry, S. T. (2022). The Origin of Decomposition in a Family of Molybdenum Precursor Compounds. *Inorg. Chem.*42: 16607–16621.
Published
Refereed?: Yes, Open Access?: No
11. Wree, J.-L.; Glauber, J.-P.; Zanders, D.**; Rogalla, D.; Becher, M.; Griffiths, M. B. E.**; Ostendorf, A.; Barry, S. T.; Ney, A.; Devi A. (2022). Ferromagnetic Cobalt Disulfide: A CVD Pathway Toward High-Quality and Phase-Pure Thin Films. *ACS Appl. Electron. Mater.*4: 3772–3779.
Published
Refereed?: Yes, Open Access?: No
12. Veinot, A. J.; Griffiths, M. B. E.**; Singh, I.; Zurakowski, J. A.*; Lummis, P. A.; Barry, S. T.; Crudden, C. M. (2022). Evaluating the thermal behaviour of benzimidazolylidene sources for thin-film applications. *Mater. Adv.*3: 6446-6450.
Published
Refereed?: Yes, Open Access?: No
13. Zanders, D.**; Masuda, J. D.; Lowe, B.; Curtis, S.; Devi, A.; Barry, S. T. (2022). An Unusual Tri-coordinate Co(II) Silylamide with Potential for Chemical Vapor Deposition Processes. *Z. Anorg. Allg. Chem.*: e202200249.
Published
Refereed?: Yes, Open Access?: No
14. Land, M. A.**; Băcîc, G.***; Robertson, K. N.; Barry, S. T. (2022). Thermal Stability and Decomposition Pathways in Volatile Molybdenum(VI) Bis-Imides. *Inorg. Chem.*61: 4980–4994.
Published
Refereed?: Yes, Open Access?: No

15. Popov, G.; Băcîc, G.**; Van Dijck, C.; Junkers, L. S.; Weiß, A.; Mattinen, M.; Vihervaara, A.; Chundak, M.; Jalkanen, P.; Mizohata, K.; Leskela, M.; Masuda, J. D.; Barry, S. T.; Ritala, M.; Kemell, M. L. (2022). Atomic Layer Deposition of PbCl₂, PbBr₂ and mixed lead halide (Cl, Br, I) PbX_nY_{2-n} thin films. *DaltonTrans.*51: 15142-15157.
Published
Refereed?: Yes, Open Access?: No
16. Varga, A. C.**; Barry, S. T. (2022). Modified 3D-Printed Architectures: Effects of Coating by Alumina on ABS. *J. Vac. Sci. Technol. A.* 40: 022407.
Published
Refereed?: Yes, Open Access?: No
17. Griffiths, M. B. E.**; Zanders, D.**; Land, M. A.**; Masuda, J. D.; Devi, A.; Barry, S. T. (2021). (tBuN)SiMe₂NMe₂ – a new N,N'–κ²-monoanionic ligand for atomic layer deposition precursors. *J. Vac. Sci. Technol. A.* 39: 032409.
Published
Refereed?: Yes, Open Access?: No
18. Pedersen, H.; Barry, S. T.; Sundqvist, J. (2021). Toward a sustainable philosophy for thin film deposition by chemical vapor deposition. *J. Vac. Sci. Technol. A.* 39: 051001.
Published
Refereed?: Yes, Open Access?: No
19. Griffiths, M. B. E.**; Dubrawski, Z. S.*; Gordon, P. G.****; Junige, M.; Barry, S. T. (2021). Thermal Ranges and Figures of Merit for Gold-Containing Precursors For ALD. *J. Vac. Sci. Technol. A.* 39: 022401.
Published
Refereed?: Yes, Open Access?: No
20. Samii, R.; Zanders, D.**; Fransson, A.; Băcîc, G.**; Barry, S. T.; Ojamäe, L.; Kessler, V; Pedersen, H.; O'Brien, N. (2021). Synthesis, Characterization and Thermal Study of Divalent Germanium, Tin and Lead Triazenides as Potential Vapor Deposition Precursors. *Inorg. Chem.*60: 12759–12765.
Published
Refereed?: Yes, Open Access?: No
21. Zanders, D.**; Liu, J.; Obenluneschloß, J.; Bock, C.; Rogalla, D.; Mai, L.; Nolan, M.; Barry, S. T.; Devi, A. (2021). Cobalt Metal ALD: Understanding the Mechanism and Role of Zinc Alkyl Precursors as Reductants for Low Resistivity Co Thin Films. *Chem. Mater.*33: 5045–5057.
Published
Refereed?: Yes, Open Access?: No
22. Zanders, D.**; Boysen, N.; Land, M. A.**; Obenluneschloß, J.; Masuda, J. D.; Mallick, B.; Barry, S. T.; Devi, A. (2021). Co(II) Amide, Pyrrolate, and Aminopyridinate Complexes: Assessment of their Manifold Structural Chemistry and Thermal Properties. *Eur. J. Inorg. Chem.*: 5119–5136.
Published
Refereed?: Yes, Open Access?: No
23. Buttera, S.C.**; Rouf, P.; Deminskyi, P.; O'Brien, N. J.; Pedersen, H.; Barry, S. T. (2021). Resolving Impurities in Atomic Layer Deposited Aluminum Nitride through Low Cost, High-Efficiency Precursor Design. *Inorg. Chem.*60: 11025–11031.
Published
Refereed?: Yes, Open Access?: No
24. Popov, G.; Băcîc, G.**; Mattinen, M.; Manner, M.; Lindström, H.; Seppänen, H.; Suihkonen, S.; Vehkamäki, M.; Kemell, M.; Jalkanen, P.; Mizohata, K.; Räisänen, J.; Leskelä, M.; Koivula, H. M.; Barry, S. T.; Ritala, M. (2020). Atomic Layer Deposition of PbS Thin Films at Low Temperatures. *Chem. Mater.*32: 8216–8228.
Published
Refereed?: Yes, Open Access?: No

25. Moret, J. L. T. M.; Griffiths, M. B. E.**; Frijns, J. E. B. M.; Terpstra, B. E.; Wolterbeek, H. T.; Barry, S. T.; Denkova, A. G.; van Ommen, J. R. (2020). Lutetium coating of nanoparticles by atomic layer deposition. *J. Vac. Sci. Technol. A*. 38: 022414.
Published
Refereed?: Yes, Open Access?: No
26. Băcîc, G.**; Rankine, C. D.; Masuda, J. D.; Wann, D. A.; Barry, S. T. (2020). Supramolecular Organization and Evaporation of Polymeric Tin Trifluoroacetates. *Inorg. Chem.*59: 996–1005.
Published
Refereed?: Yes, Open Access?: No
27. Land, M. A.**; Robertson, K. N.; Barry, S. T. (2020). Ligand Assisted Volatilization and Thermal Stability of [(t-BuN=)2MoCl2]2. *Organometallics*. 39: 916–927.
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1. Barry, S. T. (2022). *The Chemistry of Atomic Layer Deposition.* 1(1): 116.
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Book Chapters

1. Barry, S. T., Gordon, P. G.****, Vandalon, V. (2022). Common Precursors and Surface Mechanisms for Atomic Layer Deposition. *Comprehensive Organometallic Chemistry.* 4: 1-45.
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Intellectual Property

Patents

1. Method of Selective Deposition of Small Molecules on Metal Surfaces. United States of America.
US18/137,538. 2023/04/21.
Patent Status: Pending
Inventors: Cathleen M. Crudden, Seán Barry, Paul Ragogna, Ishwar Singh, Alex Jeffrey Veinot, Eden Ramona Goodwin**, Peter George Gordon****, Tianchi Zhang, Peter McBreen, Justin Lomax
A method of selective deposition that includes disposing in a deposition chamber a patterned substrate of side-by-side areas of metal and dielectric.
2. Vapor deposition processes, reactants and deposition assemblies. United States of America.
US18/190,542. 2023/03/27.
Patent Status: Pending
Inventors: Sean T. Barry, Goran Bacic***, Charles DEZELAH, Timothee Blanquart, René Henricus, Jozef Vervuurt, Peter Gordon****
vapor phase methods of depositing a metal or a semimetal-comprising materials on a substrate. In the methods, various metal or semimetal precursors may be used together with reactants that may generate hydrogen radical or amino radical to react with the metal or semimetal precursor to deposit the metal or semimetal-comprising material on the substrate.