

## Research Publications

Lisa McElwee-White

- 186 "Microwave Spectrum and Molecular Structure Calculations for  $\eta^4$ -butadiene Ruthenium Tricarbonyl," Daly, A.M.; Roehling, K.K.; Hill, R.P.; Gonzalez, M.G.; Kang, X.; McElwee-White, L.; Kukolich, S., *J. Mol. Spectrosc.*, **2024**, *405*, 111949. DOI: 10.1016/j.jms.2024.111949.
- 185 "Ion-induced Surface Reactions and Deposition from  $\text{Pt}(\text{CO})_2\text{Cl}_2$  and  $\text{Pt}(\text{CO})_2\text{Br}_2$ ," Abdel-Rahman, M.K.; Eckhert, P.M.; Chaudhary, A.; Johnson, J.M.; Yu, J.-C.; McElwee-White, L.; Fairbrother, D.H., submitted for publication.
- 184 "Electron-induced ligand loss from iron tetracarbonyl methyl acrylate," Lyschuk, H.; Chaudhary, A.; Luxford, T.F.M.; Ranković, M.; Kočišek, J.; Fedor, J.; McElwee-White, L.; Nag, P., *Beilstein J. Nanotechnol.*, **2024**, *15*, 797–807. DOI: 10.3762/bjnano.15.66.
- 183 "Electron-induced deposition using  $\text{Fe}(\text{CO})_4\text{MA}$  and  $\text{Fe}(\text{CO})_5$  – effect of MA ligand and process conditions," Boeckers, H.; Chaudhary, A.; Martinović, P.; Walker, A.V.; McElwee-White, L.; Swiderek, P., *Beilstein J. Nanotechnol.*, **2024**, *15*, 500–516. DOI: 10.3762/bjnano.15.45.
- 182 "Reactions of Ions with Adsorbed  $\text{Me}_3\text{PtCpMe}$ : The Role of Ion Identity," Abdel-Rahman, M.K.; Eckhert, P.; McElwee-White, L.; Fairbrother, D.H., *J. Phys. Chem. C*, **2024**, *128*, 7723-7732. DOI: 10.1021/acs.jpcc.4c00630.
- 181 "Aerosol-Assisted Chemical Vapor Deposition of 2H-WS<sub>2</sub> From Single-Source Tungsten Dithiolene Precursors," Germaine, I.M.; Richey, N.E.; Huttel, M.B.; McElwee-White, L., *J. Mater. Chem. C*, **2024**, *12*, 3526-3524. DOI: 10.1039/D3TC03755J.
- 180 "Chemistry for the Focused Electron and Ion Beam-Induced Deposition of Metal Nanostructures," Chaudhary, A.; Eckhert, P.; Fairbrother, D.H.; McElwee-White, L., *2023 IEEE Nanotechnology Materials and Devices Conference (NMDC)*, Paestum, Italy, 2023, pp. 501-504, DOI: 10.1109/NMDC57951.2023.10344187.
- 179 (invited paper) "Single-Source Precursors for the Chemical Vapor Deposition of Group 4-6 Transition Metal Dichalcogenides," Germaine, I.M.; McElwee-White, L., *Cryst. Growth Des.* **2024**, *14*, 1-16. DOI: 10.1021/acs.cgd.3c00733.
- 178 "Roadmap for focused ion beam technologies," Höflich, K.; Hobler, G.; Allen, F.I.; Wirtz, T.; Rius, G.; McElwee-White, L.; Krasheninnikov, A.; Schmidt, M.; Utke, I.; Klingner, N.; Osenberg, M.; Córdoba, R.; Djurabekova, F.; Manke, I.; Moll, P.; Manoccio, M.; de Teresa, J.M.; Bischoff, L.; Michler, J.; De Castro, O.; Delobbe, A.; Dunne, P.; Dobrovolskiy, O.V.; Frese, N.; Götzhäuser, A.; Mazarov, P.; Koelle, D.; Möller, W.; Pérez-Murano, F.; Philipp, P.; Vollnhals, F.; Hlawacek, G., *Appl. Phys. Rev.*, **2023**, *10*, 041311. DOI: 10.1063/5.0162597.
- Preprint: arXiv:2305.19631. DOI: 10.48550/arXiv.2305.19631.
- 177 "Dissociative Electron Attachment and Dissociative Ionization of  $\text{CF}_3\text{AuCNC}(\text{CH}_3)_3$ , a Potential FEBID Precursor for Gold Deposition," Kamali, A.; Carden, W.G.; Johnson, J.V.; McElwee-White, L.; Ingólfsson, O., *Eur. Phys. J. D*, **2023**, *77*, 157. DOI: 10.1140/epjd/s10053-023-00721-6.

- 176 "AACVD of MoS<sub>2</sub> with a Thiourea Sulfur Source: Single-source Precursors vs. Coreactant Mixtures," Germaine, I.M.; Huttel, M.B.; Alderman, M.P.; McElwee-White, L., *ACS Appl. Mater. Interfaces*, **2023**, *15*, 37764-37774. DOI: 10.1021/acsami.3c04086.
- 175 "A Molybdenum(III) Amidinate: Synthesis, Characterization and Vapor Phase Growth of Mo-based Materials," Shaw, T.D.; Ali, Z.; Currie, T.M.; Berriel, S.N.; Butkus, B.; Wagner, J.T.; Preradovic, K.; Yap, G.P.A.; Green, J.C.; Banerjee, P.; Sattelberger, A.P.; McElwee-White, L.; Jurca, T.; *ACS Appl. Mater. Interfaces*, **2023**, *15*, 35590-35599. DOI: 10.1021/acsami.3c04074.
- 174 "In Support of Early Career Researchers," Bandichhor, R., Borovik, A.; de Bettencourt-Dias, A.; Eastgate, M.; Radu, N.; Shi, F.; McElwee-White, L., *Org. Lett.*, **2023**, *25*, 715-719. DOI: 10.1021/acs.orglett.3c00187. Simultaneously published as *J. Org. Chem.*, **2023**, *88*, 1923-1927. DOI: 10.1021/acs.joc.3c00130; *Inorg. Chem.*, **2023**, *62*, 2489-2493. DOI: 10.1021/acs.inorgchem.3c00207; *Organometallics*, **2023**, *42*, 177-181. DOI: 10.1021/acs.organomet.3c00035; *Org. Process Res. Dev.*, **2023**, *27*, 233-237. DOI: 10.1021/acs.oprd.3c00017.
- 173 "Molybdenum (IV) Dithiocarboxylates as Single-Source Precursors for AACVD of MoS<sub>2</sub> Thin Films," Muhammad, S.; Ferenczy, E.T.; Germaine, I.M.; Wagner, J.T.; Jan, M.T.; McElwee-White, L., *Dalton Trans.*, **2022**, *51*, 12540-12548. DOI: 10.1039/D2DT01852G.
- 172 "Photochemistry of ( $\eta^4$ -diene)Ru(CO)<sub>3</sub> Complexes as Precursor Candidates for Photoassisted Chemical Vapor Deposition," Brewer, C.R.; Sheehan, N.C.; Herrera, J.; Walker, A.V.; McElwee-White, L., *Organometallics*, **2022**, *41*, 761-775. DOI: 10.1021/acs.organomet.1c00715.
- 171 "Nanoscale Ru-Containing Deposits from Ru(CO)<sub>4</sub>I<sub>2</sub> via Simultaneous Focused Electron Beam Induced Deposition and Etching in UHV: Mask Repair in EUVL and Beyond," Bilgilişoy, E.; Yu, J.-C.; Preischl, C.; McElwee-White, L.; Steinrück, H.-P.; Marbach, H., *ACS Appl. Nano Mater.*, **2022**, *5*, 3855-3865. DOI: 10.1021/acsanm.1c04481.
- 170 "Photoactivated Ru CVD Using ( $\eta^3$ -Allyl)Ru(CO)<sub>3</sub>X (X = Cl, Br, I): From Molecular Adsorption to Ru Thin Film Deposition," Salazar, B.G.; Brewer, C.R.; McElwee-White, L.; Walker, A.V., *J. Vac. Sci. Technol. A*, **2022**, *40*, 023404. DOI: 10.1116/6.0001490.
- 169 "The role of low-energy electron interactions in *cis*-Pt(CO)<sub>2</sub>Br<sub>2</sub> fragmentation," Cipriani, M.; Svavarsson, S.; Ferreira da Silva, F.; Lu, H.; McElwee-White, L.; Ingólfsson, O., *Int. J. Mol. Sci.* **2021**, *22*, 8984. DOI: 10.3390/ijms22168984.
- 168 "Charged Particle-Induced Surface Reactions of Organometallic Complexes as a Guide to Precursor Design for Electron and Ion Induced Deposition of Nanostructures," Yu, J.-C.; Abdel-Rahman, M.K.; Fairbrother, D.H.; McElwee-White, L., *ACS Appl. Mater. Interfaces*, **2021**, *13*, 48333-48348. DOI: 10.1021/acsami.1c12327.
- 167 "Photochemistry of 1,5-Cyclooctadiene Platinum Complexes for Photoassisted Chemical Vapor Deposition," Liu, H.; Brewer, C.R.; Walker, A.V.; McElwee-White, L., *Organometallics*, **2020**, *39*, 4565-4574. DOI: 10.1021/acs.organomet.0c00616.
- 166 "Electron beam-induced deposition of platinum from Pt(CO)<sub>2</sub>Cl<sub>2</sub> and Pt(CO)<sub>2</sub>Br<sub>2</sub>," Mahgoub, A.; Lu, H.; Thorman, R.M.; Preradovic, K.; Jurca, T.; McElwee-White, L.; Fairbrother, D.H.; Hagen, C.W., *Beilstein J. Nanotech.*, **2020**, *11*, 1789-1800. DOI: 10.3762/bjnano.11.161.

- 165 "Surface Reactions of Low Energy Argon Ions with Organometallic Precursors," Bilgilişoy, E.; Thorman, R.M.; Yu, J.C.; Dunn, T.B.; Marbach, H.; McElwee-White, L.; Fairbrother, D.H., *J. Phys. Chem. C*, **2020**, *124*, 24795-24808. DOI: 10.1021/acs.jpcc.0c07269.
- 164 "Checking in with Women Materials Scientists During a Global Pandemic: May 2020," Buonsanti, R.; Buriak, J.; Cabana, L.; Cossairt, B.; Dasog, M.; Dehnen, S.; Dempsey, J.; Koziej, D.; Grace, A. N.; McElwee-White, L.; Thomas, C.; Yang, J., *Chem. Mater.* **2020**, *32*, 4859-4862. DOI: 10.1021/acs.chemmater.0c02211.
- 163 "Electron-induced reactions of Ru(CO)<sub>4</sub>I<sub>2</sub>: gas phase, surface, and FEBID," Thorman, R.M.; Jensen, P.A.; Yu, J.C.; Matsuda, S.J.; McElwee-White, L.; Ingólfsson, O.; Fairbrother, D.H., *J. Phys. Chem. C*, **2020**, *124*, 10593-10604. DOI: 10.1021/acs.jpcc.0c01801.
- 162 "Precursors for Chemical Vapor Deposition of Tungsten Oxide and Molybdenum Oxide," Ou, N.C.; Su, X.; Bock, D.C.; McElwee-White, L., *Coord. Chem. Rev.*, **2020**, *421*, 231459. DOI: 10.1016/j.ccr.2020.213459.
- 161 "Low Temperature Platinum Chemical Vapor Deposition on Functionalized Self-Assembled Monolayers," Salazar, B.G.; Liu, H.; Walker, A.V.; McElwee-White, L., *J. Vac. Sci. Technol. A*, **2020**, *38*, 033404. DOI: 10.1116/6.0000087.
- 160 "Dissociation of the FEBID precursor *cis*-Pt(CO)<sub>2</sub>Cl<sub>2</sub> driven by low-energy electrons," Ferreira da Silva, F.; Thorman, R.M.; Bjornsson, R.; Lu, H.; McElwee-White, L.; Ingólfsson, O., *Phys. Chem. Chem. Phys.*, **2020**, *22*, 6100-6108. DOI: 10.1039/C9CP06633K.
- 159 "Efficient NH<sub>3</sub>-based process to remove chlorine from electron beam deposited ruthenium produced from (η<sup>3</sup>-C<sub>3</sub>H<sub>5</sub>)Ru(CO)<sub>3</sub>Cl," Rohdenburg, M.; Boeckers, H.; Brewer, C.R.; McElwee-White, L.; Swiderek, P., *Sci. Rep.*, **2020**, *10*, 10901. DOI: 10.1038/s41598-020-67803-y.
- 158 "Identifying and rationalizing the differing surface reactions of low energy electrons and ions with an organometallic precursor," Thorman, R.M.; Matsuda, S.J.; McElwee-White, L.; Fairbrother, D.H., *J. Phys. Chem. Lett.*, **2020**, *11*, 2006-2013. DOI: 10.1021/acs.jpcclett.0c00061.
- 157 (invited paper) "Synthesis and Evaluation of Molybdenum Imido-Thiolato Complexes for the Aerosol-Assisted Chemical Vapor Deposition of Nitrogen-Doped Molybdenum Disulfide," Ou, N.C.; Preradovic, K.; Ferenczy, E.T.; Sparrow, C.B.; Germaine, I.M.; Jurca, T.; Craciun, V.; McElwee-White, L., *Organometallics*, **2020**, *39*, 956-966. DOI: 10.1021/acs.organomet.9b00705.
- 156 "Growth of WO<sub>x</sub> from Tungsten (VI) Oxo-Fluoroalkoxide Complexes with Partially Fluorinated β-diketonate/β-ketoesterate Ligands: Comparison of Chemical Vapor Deposition to Aerosol-Assisted CVD," Ou, N.C.; Bock, D.C.; Su, X.; Craciun, D.; Craciun, V.; McElwee-White, L., *ACS Appl. Mater. Interfaces*, **2019**, *11*, 28180-28188. DOI: 10.1021/acsami.9b08830.
- 155 "Focused Electron Beam Induced Deposition (FEBID) and Post-Growth Purification Using the Heteroleptic Ru Complex (η<sup>3</sup>-C<sub>3</sub>H<sub>5</sub>)Ru(CO)<sub>3</sub>Br," Jurczyk, J.; Brewer, C.R.; Hawkins, O.M.; Polyakov, M.N.; Kapusta, C.; McElwee-White, L.; Utke, I., *ACS Appl. Mater. Interfaces*, **2019**, *11*, 28164-28171. DOI: 10.1021/acsami.9b07634.
- 154 (Very Important Paper, front cover paper) "*In Situ* Investigation of the Thermal Decomposition of Cl<sub>4</sub>(CH<sub>3</sub>CN)W(N<sup>i</sup>Pr) During Simulated Chemical Vapor Deposition," Nolan, M.M.; Kim, S.Y.; Koley, A.; Anderson, T.J.; McElwee-White, L., *Eur. J. Inorg. Chem.*, **2019**, 3661-3666. DOI:

10.1002/ejic.201900627.

- 153 (invited paper) "Dissociative ionization of the potential focused electron beam induced deposition precursor  $\pi$ -allyl ruthenium (II) tricarbonyl bromide, a combined theoretical and experimental study," Cipriani, M.; Thorman, R.M.; Brewer, C.R.; McElwee-White, L.; Ingólfsson, O., *Eur. Phys. J. D*, **2019**, *73*, 227. DOI 10.1140/epjd/e2019-100151-9.
- 152 (invited paper) "Bis( $\beta$ -ketoiminate) Dioxo Tungsten(VI) Complexes as Precursors for Growth of  $WO_x$  by Aerosol-Assisted Chemical Vapor Deposition," Su, X.; Panariti, P.; Abboud, K.A.; McElwee-White, L., *Polyhedron*, **2019**, *169*, 219-227. DOI: 10.1016/j.poly.2019.05.013.
- 151 "Photochemistry of ( $\eta^3$ -allyl)Ru(CO)<sub>3</sub>X Precursors for Photoassisted Chemical Vapor Deposition," Brewer, C.R.; Hawkins, O.M.; Sheehan, N.C.; Bullock, J.D.; Kleiman, V.D.; Walker, A.V.; McElwee-White, L., *Organometallics*, **2019**, *38*, 4363-4370. DOI: 10.1021/acs.organomet.9b00628.
- 150 "Design, Synthesis, and Evaluation of CF<sub>3</sub>AuCNR Precursors for Focused Electron Beam Induced Deposition of Gold," Carden, W.G.; Thorman, R.M.; Unlu, I.; Abboud, K.A.; Fairbrother, D.H.; McElwee-White, L., *ACS Appl. Mater. Interfaces*, **2019**, *11*, 11976-11987. DOI: 10.1021/acsami.8b18368n.
- 149 (invited paper) "Synthesis of  $\beta$ -Ketoiminate and  $\beta$ -Iminoesterate Tungsten (VI) Oxo-Alkoxide Complexes as AACVD Precursors for Growth of  $WO_x$  Thin Films," Su, X.; Kim, T.; Abboud, K.A.; McElwee-White, L., *Polyhedron*, **2019**, *157*, 548-557. DOI: 10.1016/j.poly.2018.10.035.
- 148 (invited paper) "Mechanism-Based Design of Precursors for Focused Electron Beam Induced Deposition (FEBID)," Carden, W.G.; Lu, H.; Spencer, J.A.; Fairbrother, D.H.; McElwee-White, L., *MRS Commun.*, **2018**, *8*, 343-357. DOI: 10.1557/mrc.2018.77
- 147 "N,N-disubstituted-N'-acylthioureas as modular ligands for deposition of transition metal sulfides," Ali, Z.; Richey, N.E.; Bock, D.C.; Abboud, K.A.; Akhtar, J.; Sher, M.; McElwee-White, L., *Dalton Trans.*, **2018**, *47*, 2719-2726. DOI: 10.1039/C7DT04860B.
- 146 "Electron Induced Surface Reactions of ( $\eta^5$ -C<sub>5</sub>H<sub>5</sub>)Fe(CO)<sub>2</sub>Mn(CO)<sub>5</sub>, a Potential Heterobimetallic Precursor for Focused Electron Beam Induced Deposition," Unlu, I.; Johnson, K.R.; Thorman, R.M.; Ingólfsson, O.; McElwee-White, L.; Fairbrother, D.H., *Phys. Chem. Chem. Phys.*, **2018**, *20*, 7862-7874. DOI: 10.1039/c7cp07994j
- 145 (HOT article) "Low energy electron-induced decomposition of ( $\eta^5$ -Cp)Fe(CO)<sub>2</sub>Mn(CO)<sub>5</sub>, a potential bimetallic precursor for focused electron beam induced deposition of alloy structures," Thorman, R.M.; Unlu, I.; Johnson, K.R.; Bjornsson, R.; McElwee-White, L.; Fairbrother, D.H.; Ingólfsson, O., *Phys. Chem. Chem. Phys.*, **2018**, *20*, 5644-5656. DOI: 10.1039/C7CP06705D.
- 144 (invited paper) "Synthesis of Tungsten Oxo Fluoroalkoxide Complexes WO(OR)<sub>3</sub>L as Precursors for Growth of  $WO_x$  Nanomaterials by Aerosol-Assisted Chemical Vapor Deposition," Bock, D.C.; Ou, N.C.; Bonsu, R.O.; Anghel, C.; Su, X.; McElwee-White, L., *Solid State Ionics*, **2018**, *315*, 77-84. DOI: 10.1016/j.ssi.2017.11.030.
- 143 (Very Important Paper) "Synthesis and Characterization of Tungsten Nitrido Amido Guanidinato Complexes as Precursors for Chemical Vapor Deposition of  $WN_xC_y$  Thin Films," Nolan, M.M.; Touchton, A.J.; Richey, N.E.; Ghiviriga, I.; Rocca, J.R.; Abboud, K.A.; McElwee-White, L., *Eur. J.*

*Inorg. Chem.*, **2018**, 46-53. DOI: 10.1002/ejic.201701225.

- 142 "Pt(CO)<sub>2</sub>Cl<sub>2</sub> fragmentation upon low energy electron interactions," Ferreira da Silva, F.; Thorman, R.; Lu, H.; McElwee-White, L.; Ingólfsson, O., *J. Phys.: Conf. Ser.*, **2017**, 875, 062035. DOI: 10.1088/1742-6596/875/7/062035.
- 141 (invited paper) "Comparing post-deposition reactions of electrons and radicals with Pt nanostructures created by focused electron beam induced deposition," Spencer, J.A.; Barclay, M.; Gallagher, M.J.; Winkler R.; Unlu, I.; Wu, Y.-C.; Plank, H.; McElwee-White, L.; Fairbrother, D.H., *Beilstein J. Nanotech.*, **2017**, 8, 2410-2424. DOI: 10.3762/bjnano.8.240.
- 140 (back cover paper) "Aerosol-assisted chemical vapor deposition of WS<sub>2</sub> from the single source precursor WS(S<sub>2</sub>)(S<sub>2</sub>CNEt<sub>2</sub>)<sub>2</sub>," Richey, N.E.; Haines, C.; Tami, J.L.; McElwee-White, L., *Chem. Commun.*, **2017**, 53, 7728-7731. DOI: 10.1039/C7CC03585C.
- 139 "Low energy electron-induced decomposition of ( $\eta^3$ -C<sub>3</sub>H<sub>5</sub>)Ru(CO)<sub>3</sub>Br, a potential focused electron beam induced deposition precursor with a heteroleptic ligand set," Thorman, R.M.; Brannaka, J.A.; McElwee-White, L.; Ingólfsson, O., *Phys. Chem. Chem. Phys.*, **2017**, 19, 13264-13271. DOI:10.1039/C7CP01696D.
- 138 "Halide Effects on the Sublimation Temperature of L-Au-X Complexes: Implications for Their Use as Precursors in Vapor Phase Deposition Methods," Carden, W.G.; Pedziwiatr, J.; Abboud, K.A.; McElwee-White, L., *ACS Appl. Mater. Interfaces*, **2017**, 9, 40998-41005. DOI: 10.1021/acsami.7b12465.
- 137 "Photochemical CVD of Ru on Functionalized Self-Assembled Monolayers from Organometallic Precursors," Johnson, K.R.; Arevalo Rodriguez, P.; Brewer, C.R.; Brannaka, J.A.; Shi, Z.; Yang, J.; Salazar, B.; McElwee-White, L.; Walker, A.V., *J. Chem. Phys.*, **2017**, 146, 052816. DOI: 10.1063/1.4971434.
- 136 (invited paper) "Tungsten Oxide Film and Nanorods Grown by Aerosol-Assisted Chemical Vapor Deposition using  $\kappa^2$ - $\beta$ -Diketonate and  $\beta$ -Ketoesterate Tungsten (VI) Oxo-Alkoxide Precursors," Kim, H.; Bonsu, R.O.; Bock, D.C.; Ou, N.C.; Korotkov, R.Y.; McElwee-White, L.; Anderson, T.J., *ECS J. Solid State Sci. Technol.*, **2016**, 5, Q3095-Q3105. DOI: 10.1149/2.0171611jss.
- 135 "Electron Induced Surface Reactions of cis-Pt(CO)<sub>2</sub>Cl<sub>2</sub>: a Route to Focused Electron Beam Induced Deposition of Pure Pt Nanostructures," Spencer, J.; Wu, Y.-C.; McElwee-White, L.; Fairbrother, D.H., *J. Am. Chem. Soc.*, **2016**, 138, 9172-9182. DOI: 10.1021/jacs.6b04156.
- 134 (front cover paper) "Synthesis and Evaluation of  $\kappa^2$ - $\beta$ -Diketonate and  $\beta$ -Ketoesterate Tungsten (VI) Oxo-Alkoxide Complexes as Precursors for Chemical Vapor Deposition of WO<sub>x</sub> Thin Films," Bonsu, R.O.; Bock, D.C.; Kim, H.; Korotkov, R.Y.; Abboud, K.A.; Anderson, T.J.; McElwee-White, L., *Dalton Trans.*, **2016**, 45, 10897-10908. DOI: 10.1039/C6DT01078D.
- 133 "Surface Plasmon-Mediated Chemical Solution Deposition of Cu Nanoparticle Films," Qiu, J.; Richey, N.E.; DuChene, J.S.; Zhai, Y.; Zhang, Y.; McElwee-White, L.; Wei, W.D., *J. Phys. Chem. C.*, **2016**, 120, 20775-20780. DOI: 10.1021/acs.jpcc.6b02020.
- 132 "Effect of Ligand Structure on Chemical Vapor Deposition of WN<sub>x</sub>C<sub>y</sub> Thin Films from Tungsten Nitrido Complexes of the type WN(NR<sub>2</sub>)<sub>3</sub>," Koley, A.; O'Donohue, C.; Nolan, M.M.; McClain, K.R.; Bonsu, R.O.; Korotkov, R.Y.; Anderson, T.J.; McElwee-White, L., *Chem. Mater.*, **2015**, 27,

8326–8336. DOI: 10.1021/acs.chemmater.5b03691.

- 131 "Thermal Decomposition of Tungsten Nitrido Precursors for Low Temperature MOCVD of  $W_Nx_Cy$ ," Kim, S.Y.; Koley, A.; Bonsu, R.O.; Nolan, M.M.; McElwee-White, L.; Anderson, T.J., *ECS Transactions*, **2015**, *69*, 101-110.
- 130 "Dioxo-Fluoroalkoxide Tungsten (VI) Complexes for Growth of  $WO_x$  Thin Films by Aerosol-Assisted Chemical Vapor Deposition," Bonsu, R.O.; Kim, H.; O'Donohue, C.; Korotkov, R.Y.; Abboud, K.A.; Anderson, T.J.; McElwee-White, L., *Inorg. Chem.* **2015**, *54*, 7536-7547. DOI: 10.1021/acs.inorgchem.5b01124
- 129 "Electron Induced Surface Reactions of  $\eta^3$ -Allyl Ruthenium Tricarbonyl Bromide [ $\eta^3$ -( $C_3H_5$ ) $Ru(CO)_3Br$ ]: Contrasting the Behavior of Different Ligands," Spencer, J.; Brannaka, J.A.; Barclay, M.; McElwee-White, L.; Fairbrother, D.H., *J. Phys. Chem C*, **2015**, *119*, 15349–15359. DOI: 10.1021/acs.jpcc.5b03775.
- 128 "Solvent Control of Surface Plasmon Mediated Chemical Deposition of Au Nanoparticles from Alkylgold Phosphine Complexes," Muhich, C.L.; Qiu, J.; Holder, A.M.; Wu, Y.-C.; Weimer, A.W.; Wei, W.D.; McElwee-White, L.; Musgrave, C.B., *ACS Appl. Mater. Interfaces*, **2015**, *7*, 13384–13394. DOI: 10.1021/acsami.5b01918.
- 127 "Aerosol-Assisted Chemical Vapor Deposition of Tungsten Oxide Films and Nanorods from Oxo Tungsten(VI) Fluoroalkoxide Precursors," Kim, H.; Bonsu, R.O.; O'Donohue, C.; Korotkov, R.Y.; McElwee-White, L.; Anderson, T.J., *ACS Appl. Mater. Interfaces*, **2015**, *7*, 2660–2667. DOI: 10.1021/am507706e.
- 126 "Low Temperature Deposition of  $W_Nx_Cy$  Cu Diffusion Barriers using  $WN(NEt_2)_3$  as a Single-Source Precursor," O'Donohue, C.T.; McClain, K.R.; Koley, A.; Revelli, J.C.; McElwee-White, L.; Anderson, T.J., *ECS J. Solid State Sci. Tech.*, **2015**, *4*, N3180-N3187. DOI: 10.1149/2.0251501jss
- 125 (invited paper) "Formylation of Amines," Gerack, C.J.; McElwee-White, L., *Molecules*, **2014**, *19*, 7689-7713. DOI:10.3390/molecules19067689.
- 124 (invited paper) "Understanding the Electron Stimulated Surface Reactions of Organometallic Complexes to Enable Design of Precursors for Electron Beam Induced Deposition," Spencer, J.; Rosenberg, S.; Barclay, M.; Wu, Y.-C.; McElwee-White, L.; Fairbrother, D.H., *Appl. Phys. A*, **2014**, *117*, 1631-1644. DOI 10.1007/s00339-014-8570-5.
- 123 "Partially Fluorinated Oxo-alkoxide Tungsten (VI) Complexes as Precursors for Deposition of  $WO_x$  Nanomaterials," Bonsu, R.O.; Kim, H.; O'Donohue, C.; Korotkov, R.Y.; McClain, K.R.; Abboud, K.A.; Ellsworth, A.A.; Walker, A.V.; Anderson, T.J.; McElwee-White, L., *Dalton Trans.*, **2014**, *43*, 9226-9233. DOI:10.1039/C4DT00407H
- 122 "Tris(allyl)iridium and -rhodium," John, K. D.; Eglin, J. L.; Salazar, K. V.; Baker, R. T.; Sattelberger, A. P.; Serra, D.; McElwee-White, L., in *Inorganic Syntheses: Vol. 36*; John Wiley & Sons, Inc.: 2014, p. 165-171. DOI: 10.1002/9781118744994.ch32
- 121 "Tungsten Oxytetrachloride and (Acetonitrile)Tetrachlorotungsten Imido Complexes," Reitfort-Baysal, L.L.; Wilder, C.B.; McElwee-White, L.; Mijares, K. S., Karcher, J. D. and Maatta, E. A., in *Inorganic Syntheses: Vol. 36*; John Wiley & Sons, Inc.: 2014, p. 142-146. DOI:

- 120 "Tungsten Nitrido Complexes as Precursors for Low Temperature Chemical Vapor Deposition of  $WN_xC_y$  Films as Diffusion Barriers for Cu Metallization," McClain, K.R.; O'Donohue, C.; Koley, A.; Bonsu, R.O.; Abboud, K.A.; Revelli, J.C.; Anderson, T.J.; McElwee-White, L., *J. Am. Chem. Soc.* **2014**, *136*, 1650-1662. DOI: 10.1021/ja4117582.
- 119 "Heterobimetallic Complexes of Polypyridyl Ligands Containing Paramagnetic Centers: Synthesis and Characterization by IR and EPR," Goforth, S.K.; Walroth, R.C.; Angerhofer, A.; McElwee-White, L., *Inorg. Chem.*, **2013**, *52* (24), 14116–14123. DOI: 10.1021/ic401952s
- 118 "Evaluation of Multisite Polypyridyl Ligands as Platforms for the Synthesis of Rh/Zn, Rh/Pd, and Rh/Pt Heterometallic Complexes," Goforth, S.K.; Walroth, R.C.; McElwee-White, L., *Inorg. Chem.*, **2013**, *52*, 5692–5701. DOI: 10.1021/ic301810y
- 117 "Surface Plasmon Mediated Chemical Solution Deposition of Gold Nanoparticles on a Nanostructured Silver Surface," Qiu, J.; Wu, Y.-C.; Wang, Y.-C.; Engelhard, M.H.; McElwee-White, L.; Wei W.D., *J. Am. Chem. Soc.* **2013**, *135*, 38-41. DOI: 10.1021/ja309392x
- 116 "Oxidative Carbonylation of Amines to Formamides Using  $NaIO_4$ ," Gerack, C.J.; McElwee-White, L., *Chem. Commun.*, **2012**, *48*, 11310–11312. DOI:10.1039/C2CC36809A
- 115 (invited paper) "Synthesis of  $WN(NMe_2)_3$  as a Precursor for the Deposition of  $WN_x$  Nanospheres," McClain, K.R.; O'Donohue, C.; Shi, Z.; Walker, A.V.; Abboud, K.A.; Anderson, T.; McElwee-White, L., *Eur. J. Inorg. Chem.*, **2012**, 4579–4584. DOI:10.1002/ejic.201200254
- 114 "Experimental and Computational Studies of the Homogeneous Thermal Decomposition of the Tungsten Dimethylhydrazido Complex  $Cl_4(CH_3CN)W(NNMe_2)$ ," Lee, J.; Kim, D.; Kim, O.H.; Anderson, T.J.; Koller, J.; Denomme, D.; Habibi, S.Z.; Ehsan, M.; Eyler, J.R.; McElwee-White, L., *J. Electrochem. Soc.*, **2012**, *159*, H545-H553. DOI: 10.1149/2.002206jes.
- 113 "Catalytic Oxidative Carbonylation of Diamines to Cyclic Ureas," Díaz, D.J.; Darko, A.K.; McElwee-White, L., in *New Trends in Heterocyclic Chemistry*. Gautam, D.C.; Gautam, N.; Gautam, V., Eds. RBSA Publishers: Jaipur, **2012**, 22-33.
- 112 "Catalytic Oxidative Carbonylation of Aryl Amines to Ureas Using  $W(CO)_6/I_2$  as Catalyst," Zhang, L.; Darko, A.K.; Johns, J.I.; McElwee-White, L., *Eur. J. Org. Chem.*, **2011**, 6261-6268. DOI: 10.1002/ejoc.201100657.
- 111 "Carbonylation of Functionalized Diamine Diols to Cyclic Ureas: Application to Derivatives of DMP 450," Darko, A.K.; Curran, F.C.; Copin, C.; McElwee-White, L., *Tetrahedron*, **2011**, *67*, 3976-3983. DOI 10.1016/j.tet.2011.04.015.
- 110 "Iron and Ruthenium Heterobimetallic Carbonyl Complexes as Electrocatalysts for Alcohol Oxidation: Electrochemical and Mechanistic Studies," Serra, D.; Correia, M.C.; McElwee-White, L., *Organometallics*, **2011**, *30*, 5568–5577. DOI: 10.1021/om101070z.
- 109 (invited paper) "Electrochemical Oxidation of Ethanol using Nafion Electrodes Modified with Heterobimetallic Catalysts," Moghieb, A.; Correia, M.C.; McElwee-White, L., *Inorg. Chim. Acta*, **2011**, *369*, 159-164.

- 108 "Deposition of  $WN_xC_y$  from the Tungsten Piperidylhydrazido Complex  $Cl_4(CH_3CN)W(N-pip)$  as a Single-Source Precursor," Kim, D.; Kim, O.H.; Ajmera, H.M.; Anderson, T.J.; Koller, J.; Abboud, K.A.; McElwee-White, L., *J. Electrochem. Soc.*, **2011**, *158*, H618-H625. DOI:10.1149/1.3561669
- 107 "Analysis of the Homogeneous Thermal Decomposition of the Tungsten Dimethylhydrazido Complex  $Cl_4(CH_3CN)W(NNMe_2)$  Using *in situ* Raman Spectroscopy and DFT Calculations," Lee, J.; Kim, D.; Kim, O.H.; Anderson, T.J.; Koller, J.; Denomme, D.; Habibi, S.Z.; McElwee-White, L., *ECS Transactions*, **2010**, *28(15)*, 15-26.
- 106 (invited paper) "Synthesis and Electronic Structure of Tetra- $\eta^3$ -phenylpropargylzirconium," Denomme, D.; Dumbris, S.M.; Hyatt, I.D.; Abboud, K.A.; Ghiviriga, I.; McElwee-White, L., *Organometallics*, **2010**, *29*, 5252-5256.
- 105 "Pd/TaN bilayer as a diffusion barrier for directly electroless plated Cu interconnects," Leu, L.C.; Norton, D.P.; McElwee-White, L.; Anderson, T.J., submitted for publication.
- 104 (invited paper) "Dimerization of Ethynylaniline to a Quinoline Derivative Using a Ruthenium/Gold Heterobimetallic Catalyst," Shelton, P.A.; Hilliard, C.R.; Swindling, M.; McElwee-White, L., *ARKIVOC*, **2010**, (viii), 160-166.
- 103 "Computational study on transamination of alkylamides with  $NH_3$  during metalorganic chemical vapor deposition of tantalum nitride," Won, Y.S.; Park, S.S.; Kim, Y.S.; Anderson, T.J.; McElwee-White, L. *J. Cryst. Growth* **2009**, *311*, 3587-3591.
- 102 "Stability of Cu/Ir/Si Trilayer Structure to Moderate Annealing," Leu L.C.; Norton, D.P.; Anderson, T.J.; McElwee-White L. *Materials Science in Semiconductor Processing*, **2009**, *12*, 151-155.
- 101 "Preparation of Hydantoins by Catalytic Oxidative Carbonylation of  $\alpha$ -Amino Amides," Dumbris, S.M.; Díaz, D.J.; McElwee-White, L., *J. Org. Chem.*, **2009**, *74*, 8862-8865. DOI: 10.1021/jo9016138.
- 100 "Electrochemical Oxidation of Ethanol Using Heterobimetallic Complexes as an Approach to DEFC Catalysts," Correia, M.C.; Moghieb, A.; Goforth, S.K.; McElwee-White, L. *ECS Transactions*, **2009**, *19(31)*, 13-21.
- 99 "Deposition of  $WN_xC_y$  from the Tungsten Piperidylhydrazido Complex  $Cl_4(CH_3CN)W(N-pip)$  as a Single-Source Precursor," Kim, D.; Kim, O.H.; Ajmera, H.M.; Anderson, T.J.; Koller, J.; McElwee-White, L., *ECS Transactions*, **2009**, *25(8)*, 541-548. DOI: 10.1149/1.3207637.
- 98 "Mechanism-Based Design of Precursors for MOCVD," McElwee-White, L.; Koller, J.; Kim, D.; Anderson, T.J., *ECS Transactions*, **2009**, *25(8)*, 161-171. DOI: 10.1149/1.3207587.
- 97 "Deposition of  $WN_xC_y$  Thin Films for Diffusion Barrier Application Using the Dimethylhydrazido(2-) Tungsten Complex  $(CH_3CN)Cl_4W(NNMe_2)$ ," Ajmera, H.M.; Anderson, T.J.; Koller, J.; McElwee-White, L.; Norton, D.P., *Thin Solid Films*, **2009**, *517*, 6038-6045.
- 96 "NaIO<sub>4</sub>-oxidized carbonylation of amines to ureas," Shelton, P.A.; Zhang, Y.; Nguyen, T.H.H.; McElwee-White, L., *Chem. Commun.*, **2009**, 947-949. DOI: 10.1039/b819891h.
- 95 "Chemical Vapor Deposition of  $WN_xC_y$  using the Tungsten Piperidylhydrazido Complex  $Cl_4(CH_3CN)W(N-pip)$ : Deposition, Characterization and Diffusion Barrier Evaluation," Kim, D.; Kim, O.H.; Anderson, T.J.; Koller, J.; McElwee-White, L.; Leu, L.C.; Tsai, J.M.; Norton, D.P., *J.*



- 94 "Properties of reactively sputtered W-B-N thin film as a diffusion barrier for Cu metallization on Si," Leu, L.C.; Norton, D.P.; McElwee-White, L.; Anderson, T.J., *Appl. Phys. A*, **2009**, 94, 691-695.
- 93 "Deposition of  $WN_xC_y$  for Diffusion Barrier Application Using the Imido Guanidinato Complex  $W(N^iPr)Cl_3[{}^iPrNC(NMe_2)N^iPr]$ ," Ajmera, H.M.; Heitsch, A.T.; Anderson, T.J.; Wilder, C.B.; Reitfort, L.L.; McElwee-White, L.; Norton, D.P., *J. Vac. Sci. Technol. B*, **2008**, 26, 1800-1807. (Note: this paper was selected for the *Virtual Journal of Nanoscale Science & Technology* **2008** Volume 18, Issue 15)
- 92 "Comparative study of ZrN and Zr-Ge-N as a diffusion barrier for Cu metallization on Si," Leu, L.C.; Sadik, P.; Norton, D.P.; McElwee-White, L.; Anderson, T.J., *J. Vac. Sci. Technol. B*, **2008**, 26, 1723-1727.
- 91 "Deposition of  $WN_xC_y$  Using the Allylimido Complexes  $Cl_4(RCN)W(NC_3H_5)$ : Effect of  $NH_3$  on Film Properties," Ajmera, H.M.; Heitsch, A.T.; Bchir, O.J.; Anderson, T.J.; Reitfort, L.L.; McElwee-White, L., *J. Electrochem. Soc.*, **2008**, 155, H829-H835.
- 90 "Computational Study of the Gas Phase Reactions of Isopropylimido and Allylimido Tungsten Precursors for Chemical Vapor Deposition of Tungsten Carbonitride Films: Implications for the Choice of Carrier Gas," Won, Y.S.; Kim, Y.S.; Anderson, T.J.; McElwee-White, L. *Chem. Mater.*, **2008**, 20, 7246-7251.
- 89 "Ir/TaN as a bilayer diffusion barrier for advanced Cu interconnects," Leu, L.C.; Norton, D.P.; McElwee-White, L.; Anderson, T.J. *Appl. Phys. Lett.*, **2008**, 92, 111917.
- 88 "An N-bridged tritungsten compound for the chemical vapor deposition of  $WN_x$  thin films," Koller, J.; McElwee-White, L.; Abboud, K.A., *Acta Cryst.*, **2007**, E63, m2733.
- 87 "Electrochemical Oxidation of Methanol Using Alcohol-Soluble Ru/Pt and Ru/Pd Catalysts," Serra, D.; McElwee-White, L. *Inorg. Chim. Acta*, **2008**, 361, 3237-3246. DOI: 10.1016/j.ica.2007.10.046.
- 86 (cover paper) "Synthesis and Characterization of Diorganohydrazido(2-) Tungsten Complexes," Koller, J.; Ajmera, H.M.; Abboud, K.A.; Anderson, T.J.; McElwee-White, L., *Inorg. Chem.*, **2008**, 47, 4457-4462.
- 85 "Equilibrium Analysis of Zirconium Carbide CVD Growth," Won, Y.S.; Varanasi, V.G.; Kryliouk, O.; Anderson, T.J.; McElwee-White, L., Perez, R.J., *J. Cryst. Growth.*, **2007**, 307, 302-308.
- 84 "Transition Metal-Catalyzed Oxidative Carbonylation of Amines to Ureas," Díaz, D.J.; Darko, A.K.; McElwee-White, L., *Eur. J. Org. Chem.*, **2007**, 4453-4465. DOI: 10.1002/ejoc.200700148
- 83 "Electronic Interactions in Fe- and Ru-Containing Heterobimetallic Complexes: Structural and Spectroscopic Investigations," Serra, D.; Abboud, K.A.; Hilliard, C.R.; McElwee-White, L., *Organometallics*, **2007**, 26, 3085-3093. DOI: 10.1021/om0610750.
- 82 "Investigation of W-Ge-N deposited on Ge as a diffusion barrier for Cu metallization," Rawal, S.; Norton, D.P.; Anderson, T.J.; McElwee-White, L., *Appl. Phys. A*, **2006**, 85, 325-329.
- 81 "Design of Precursors for the CVD of Inorganic Thin Films," McElwee-White, L. *Dalton Trans.* **2006**,

5327-5333. DOI: 10.1039/B611848H

- 80 "Properties of Ta-Ge-(O)N as a diffusion barrier for Cu on Si," Rawal, S.; Norton, D.P.; Ajmera, H.; Anderson, T.J.; McElwee-White, L., *Appl. Phys. Lett.* **2007**, *90*, 051913.
- 79 "Ge/HfN<sub>x</sub> diffusion barrier for Cu metallization on Si," Rawal, S.; Norton, D.P.; Kim, K.C.; Anderson, T.J.; McElwee-White, L. *Appl. Phys. Lett.* **2006**, *89*, 231914.
- 78 "Homogeneous Decomposition of Aryl- and Alkylimido Precursors for the CVD of Tungsten Nitride: A Combined Density Functional Theory and Experimental Study," Won, Y.S.; Kim, Y.S.; Anderson, T.J.; Reitfort, L.L.; Ghiviriga, I.; McElwee-White, L., *J. Am. Chem. Soc.*, **2006**, *128*, 13781-13788.
- 77 "Catalysis of the Electrooxidation of Biomass-Derived Alcohol Fuels," Anthony, C.R.; Serra, D.; McElwee-White, L. in *Materials, Chemicals and Energy from Forest Biomass*. Argyropoulos, D.S., Ed. ACS Symposium Series, **2007**, *954*, 296-310.
- 76 "Thermal and Volumetric Studies of Complex Chemical Hydrides: Li-modified/Ti-doped Mg<sub>2</sub>FeH<sub>6</sub>, Sonicated LiNH<sub>2</sub>/LiH and Zn-doped NaBH<sub>4</sub>," Srinivasan, S.; Dumbriș, S.; Stefanakos, E.; Goswami, Y.; McElwee-White, L. *Mat. Res. Soc. Symp. Proc.*, **2006**, *885*, 169-174.
- 75 "Comparative study of HfN<sub>x</sub> and Hf-Ge-N copper diffusion barriers on Ge," Rawal, S.; Lambers, E.; Norton, D.P.; Anderson, T.J.; McElwee-White, L., *J. Appl. Phys.*, **2006**, *100*, 063532.
- 74 "Synthesis and Structural Investigation of Tungsten Imido Amidinate and Guanidinate Complexes," Wilder, C.B.; Reitfort, L.L.; Abboud, K.A.; McElwee-White, L., *Inorg. Chem.*, **2006**, *45*, 263-268. DOI: 10.1021/ic051497m.
- 73 "Selective Catalytic Oxidative Carbonylation of Aminoalcohols to Ureas," Díaz, D.J.; Hylton, K.-G.; McElwee-White, L., *J. Org. Chem.*, **2006**, *71*, 734-738. DOI: 10.1021/jo0521908.
- 72 "Properties of W-Ge-N as a diffusion barrier material for Cu," Rawal, S.; Norton, D.P.; Anderson, T.J.; McElwee-White, L., *Appl. Phys. Lett.*, **2005**, *87*, 111902.
- 71 "Growth of ZrC Thin Films by Aerosol-Assisted MOCVD," Won, Y.S.; Kim, Y.S.; Kryliouk, O.; Anderson, T.J.; Varanasi, V.G.; Sirimanne, C.T.; McElwee-White, L., *J. Cryst. Growth.*, **2007**, *304*, 324-332.
- 70 "Electrocatalytic Oxidation of Methanol," Anthony, C.R.; McElwee-White, L., in *Feedstocks for the Future: Renewables for the Production of Chemicals and Materials*. Bozell, J., Ed. ACS Symposium Series No. 921, **2006**, pp. 130-142.
- 69 "The Tungsten Allylimido Complexes Cl<sub>4</sub>(RCN)W(NC<sub>3</sub>H<sub>5</sub>) as Single-source CVD Precursors for WN<sub>x</sub>C<sub>y</sub> Thin Films. Correlation of Precursor Fragmentation to Film Properties," Bchir, O.J.; Green, K.M.; Ajmera, H.M.; Zapp, E.A.; Anderson, T.J.; Brooks, B.C.; Reitfort, L.L.; Powell, D.H.; Abboud, K.A.; McElwee-White, L., *J. Am. Chem. Soc.*, **2005**, *127*, 7825-7833.
- 68 (cover paper) "Preparation of biotin derivatives by catalytic oxidative carbonylation of diamines," Zhang, Y.; Forinash, K.; Phillips, C.R.; McElwee-White, L., *Green Chem.*, **2005**, *7*, 451-455. DOI: 10.1039/B500197h.
- 67 "Electrochemical oxidation of methanol using dppm-bridged Ru/Pd, Ru/Pt, and Ru/Au catalysts,"

- Yang, Y.; McElwee-White, L. *Dalton Trans.*, **2004**, 2352-2356. DOI: 10.1039/B405784h.
- 66 "Selective electrochemical oxidation of methanol to dimethoxymethane using Ru/Sn catalysts," Anthony, C.R.; McElwee-White, L. *J. Mol. Catal. - A: Chem.*, **2005**, 227, 113-117. DOI: 10.1016/j.molcata.2004.10.016.
- 65 "Effect of NH<sub>3</sub> on Film Properties of MOCVD Tungsten Nitride from Cl<sub>4</sub>(CH<sub>3</sub>CN)W(N<sup>i</sup>Pr)," Bchir, O.J.; Kim K.C.; Anderson, T. J.; Craciun, V.; Brooks, B.C.; McElwee-White, L., *J. Electrochem. Soc.*, **2004**, 151, G697-G703.
- 64 "Tungsten Nitride Thin Films Deposited by MOCVD: Sources of Carbon and Effects on Film Structure and Stoichiometry," Bchir, O.J.; Green, K.M.; Hlad, M.S.; Anderson, T. J.; Brooks, B.C.; McElwee-White, L., *J. Cryst. Growth*, **2004**, 261, 280-288.
- 63 "Cl<sub>4</sub>(PhCN)W(NPh) as a single-source MOCVD precursor for deposition of tungsten nitride (WN<sub>x</sub>) thin films," Bchir, O. J.; Green, K.M.; Hlad, M.S.; Anderson, T. J.; Brooks, B.C.; Wilder, C.B.; Powell, D.H.; McElwee-White, L. *J. Organomet. Chem.*, **2003**, 684, 338-350.
- 62 "MOCVD of Tungsten Nitride Thin Films From the Imido Complex Cl<sub>4</sub>(CH<sub>3</sub>CN)W(N<sup>i</sup>Pr): Effect of NH<sub>3</sub> On Film Properties," Bchir, O.J.; Anderson, T.J.; Brooks, B.C.; McElwee-White, L. in *Chemical Vapor Deposition XVI (CVD-VXI) and EUROCVD 14*, Allendorf, M.; Maury, F.; Teyssandier, F., Ed.; Electrochemical Society: Pennington, NJ, 2003, Proceedings (Electrochemical Society) Vol. 2003-08, p. 424-431.
- 61 "Heterobimetallic complexes with dppm-bridged Ru/Pd, Ru/Pt, Ru/Au and Ru/Cu centers," Yang, Y.; Abboud, K.A.; McElwee-White, L. *Dalton Trans.*, **2003**, 4288-4296. DOI: 10.1039/B307990b.
- 60 "Catalytic Carbonylation of Functionalized Diamines: Application to the Core Structure of DMP 323 and DMP 450," Hylton, K.-G.; Main, A.D.; McElwee-White, L. *J. Org. Chem.*, **2003**, 68, 1615-1617. DOI: 10.1021/jo026816v.
- 59 "MOCVD of Tungsten Nitride (WN<sub>x</sub>) Thin Films from the Imido Complex Cl<sub>4</sub>(CH<sub>3</sub>CN)W(N<sup>i</sup>Pr)," Bchir, O. J.; Johnston, S. W.; Cuadra, A.C.; Anderson, T. J.; Ortiz, C.G.; Brooks, B.C.; Powell, D.H.; McElwee-White, L. *J. Cryst. Growth*, **2003**, 249, 262-274.
- 58 "Electrochemical Oxidation of Methanol with Ru/Pd, Ru/Pt and Ru/Au Heterobimetallic Complexes," Matare, G.J.; Tess, M.E.; Abboud, K.A.; Yang, Y.; McElwee-White, L., *Organometallics*, **2002**, 21, 711-716.
- 57 "Catalytic Oxidative Carbonylation of Primary and Secondary Diamines to Cyclic Ureas. Optimization and Substituent Studies," Qian, F.; McCusker, J.E.; Zhang, Y.; Main, A.D.; Chlebowski, M.; Kokka, M.; McElwee-White, L., *J. Org. Chem.*, **2002**, 67, 4086-4092. DOI: 10.1021/jo0109319.
- 56 "MOCVD of WN<sub>x</sub> Thin Films Using Novel Imido Precursors," Johnston, S. W.; Ortiz, C. G.; Bchir, O. J.; Zhang, Y.; McElwee-White, L.; Anderson, T. J. in *Chemical Vapor Deposition: CVD XV (15th)*, Allendorf, M. D. and Besmann, T. M., Ed.; Electrochemical Society: Pennington, NJ, 2000, Proceedings (Electrochemical Society) Vol. 2000-13, pp. 268-276.
- 55 "Catalytic Oxidative Carbonylation of Aliphatic Secondary Amines to Tetrasubstituted Ureas," McCusker, J.E.; Qian, F.; McElwee-White, L., *J. Mol. Catal. - A: Chem.* **2000**, 159, 11-17. DOI: 10.1016/S1381-1169(00)00164-3.

- 54 "W(CO)<sub>6</sub>-Catalyzed Oxidative Carbonylation of Primary Amines to N,N'-Disubstituted Ureas in Single or Biphasic Solvents. Optimization and Functional Group Compatibility Studies." McCusker, J.E.; Main, A.D.; Johnson, K.S.; Grasso, C.A.; McElwee-White, L., *J. Org. Chem.*, **2000**, *65*, 5216-5222. DOI: 10.1021/jo000364+.
- 53 "Ligand-Centered Reactivity of Organometallic Radicals," Torraca, K.E.; McElwee-White, L., *Coord. Chem. Rev.*, **2000**, *206-207*, 469-491.
- 52 "Bimetallic Pt/Ru Complexes as Catalysts for the Electrooxidation of Methanol," Tess, M.E.; Hill, P.L.; Torraca, K.E.; Kerr, M.E.; Abboud, K.A.; McElwee-White, L., *Inorg. Chem.*, **2000**, *39*, 3942-3944. DOI: 10.1021/ic0004434.
- 51 "Spectroscopic and Photophysical Properties of Metal Alkylidynes," McElwee-White, L., *Inter-American Photochemical Society Newsletter*, **1999**, *22(1)*, 25-31.
- 50 "Effect of Ligand Variation on the Site of Protonation in the Metal Carbynes CpL<sub>2</sub>Mo<sup>0</sup>CBu and TpL<sub>2</sub>Mo≡CBu [L = CO, P(OR)<sub>3</sub>]," Torraca, K.E.; Ghiviriga, I.; McElwee-White, L., *Organometallics*, **1999**, *21*, 2262-2266.
- 49 "Catalytic Oxidative Carbonylation of Primary and Secondary α,ω-Diamines to Cyclic Ureas," McCusker, J.E.; Grasso, C.A.; Main, A.D.; McElwee-White, L., *Organic Letters*, **1999**, *1*, 961-964. DOI: 10.1021/ol990690f.
- 48 "Photophysics and Photoredox Properties of the Tungsten Carbyne Complex Cp{P(OPh)<sub>3</sub>}<sub>3</sub>(CO)W≡CPh," Cavalheiro, C.C.S.; Torraca, K.E.; Schanze, K.S.; McElwee-White, L., *Inorg. Chem.*, **1999**, *38*, 3254-3257.
- 47 "Oxidation of the Zwitterionic Tungsten Amide (CO)<sub>5</sub>WPhNPhC(OMe)Ph with Br<sub>2</sub> and PCl<sub>5</sub>. Formation of [(PhN)W(CO)<sub>2</sub>X<sub>2</sub>]<sub>2</sub> and (PhN)W(CO)<sub>2</sub>X<sub>2</sub>L (X = Br, Cl; L = MeCN, Me<sub>3</sub>C<sub>6</sub>H<sub>2</sub>NH<sub>2</sub> and *i*-BuNH<sub>2</sub>)," He, Y., McGowan, P.C.; Abboud, K.A.; McElwee-White, L., *J. Chem. Soc., Dalton Trans.*, **1998**, 3373-3378.
- 46 "Oxidation of Metal Carbynes in the Presence of Alkynes. Alkyne Addition vs. H-Shift in the Carbene Intermediate," Torraca, K.E.; Abboud, K.A.; McElwee-White, L., *Organometallics*, **1998**, *20*, 4413-4416.
- 45 "Oxidative Carbonylation of Primary Amines to Ureas Using Tungsten Carbonyl Catalysts," McCusker, J.E.; Logan, J.; McElwee-White, L., *Organometallics*, **1998**, *17*, 4037-4041. DOI: 10.1021/om980389n.
- 44 "Tricarbonyl bis[1,2,3-triphenyl-1,3-diazaallyl] tungsten(IV)," He, Y.; McElwee-White, L.; Abboud, K.A., *Acta Cryst.* **1999**, *C55*, IUCR9900032.
- 43 "Reaction of the Iodo-bridged Tungsten Dimer [I<sub>2</sub>(CO)<sub>2</sub>W(NPh)]<sub>2</sub> with LiOCH<sub>3</sub>," He, Y.; Abboud, K.A.; McElwee-White, L., *Polyhedron*, **1998**, *17*, 3477-3484.
- 42 "Carbonylation of Amines With a Tungsten(IV) Carbonyl Complex," McCusker, J.E.; Abboud, K.A.; McElwee-White, L., *Organometallics*, **1997**, *16*, 3863-3866. DOI: 10.1021/om970388f
- 41 "Direct Observation of a Hydrogen Abstraction Product Upon Photooxidation of a Tungsten Cyclohexenyl Carbyne Complex," Main, A.D.; McElwee-White, L., *J. Am. Chem. Soc.*, **1997**, *119*,

4551-4552.

- 40 "Formation of  $\alpha,\omega$ -Dienes Upon Photooxidation of Alkenyl Carbyne Complexes," Torraca, K.E.; Storhoff, D.A.; McElwee-White, L., *J. Organomet. Chem.*, **1998**, *554*, 13-18.
- 39 "Synthesis and Electrochemical Oxidation of Bridged Ruthenium/Platinum Complexes of 1,10-Phenanthroline-5,6-diolate," Hill, P.L.; Lee, L.Y.; Younkin, T.R.; Orth, S.D.; McElwee-White, L., *Inorg. Chem.*, **1997**, *36*, 5655-5657. DOI: 10.1021/ic9706055
- 38 "Organic Products From Oxidation of Metal Carbynes," McElwee-White, L. *Synlett*, **1996**, 806-814.
- 37 "Structure, Reactivity, and Photochemical Properties of the Unusual Tungsten(0) Zwitterionic Amido Complex (CO)<sub>5</sub>WNPhNPhC(OMe)Ph," Massey, S.T.; Barnett, N.D.R.; Abboud, K.A.; McElwee-White, L. *Organometallics*, **1996**, *15*, 4625-4631.
- 36 "Synthesis and Electrochemistry of Heterobimetallic Ru/Pt and Mo/Pt Complexes," Orth, S.D.; Terry, M.R.; Abboud, K.; Dodson, B.; McElwee-White, L. *Inorg. Chem.*, **1996**, *35*, 916-922.
- 35 "Oxidation of the Zwitterion (CO)<sub>5</sub>WNPhNPhC(OMe)Ph with I<sub>2</sub>. Formation of Tungsten (IV) Imido Complexes and a Tungsten (VI) Metallacycle," Barnett, N.D.R.; Massey, S.T.; McGowan, P.C.; Wild, J.J.; Abboud, K.A.; McElwee-White, L. *Organometallics*, **1996**, *15*, 424-428.
- 34 "Photooxidation of Metal Carbynes," McElwee-White, L.; Schoch, T.K. *Current Trends in Coordination Chemistry*, Ondrejovi, G.; Sirota, A., Eds., Slovak Technical University Press, Bratislava, **1995**, pp. 251-256.
- 33 "Photophysics of Tungsten and Molybdenum Aryl Carbyne Complexes. Observation of the Lowest Excited State by Laser Flash Photolysis" Schoch, T.K.; Main, A.D.; Burton, R.D.; Lucia, L.A.; Robinson, E.A.; Schanze, K.S.; McElwee-White, L. *Inorg. Chem.*, **1996**, *35*, 7769-7775. DOI: 10.1021/ic951043x.
- 32 "Formation of Olefins Upon Oxidation of Molybdenum Alkyl Carbynes. Organic Radical Reactivity in an Organometallic Radical Cation," Schoch, T.K.; Orth, S.D.; Zerner, M.C.; Jørgensen, K.A.; McElwee-White, L. *J. Am. Chem. Soc.*, **1995**, *117*, 6475-6482. DOI: 10.1021/ja00129a009.
- 31 "Tungsten (IV) Imido Complexes From Oxidation of a Protected Zero-Valent Nitrene Precursor," McGowan, P.C.; Massey, S.T.; Abboud, K.A.; McElwee-White, L. *J. Am. Chem. Soc.*, **1994**, *116*, 7419-7420.
- 30 "Formation of Pentadienal Complexes Upon Protonation of 1-Alkylcyclopropyl Molybdenum Carbynes. Electronic Effects on Reductive Elimination vs.  $\beta$ -Hydrogen Elimination in Metallacyclohexenones," Mortimer, M.D.; Carter, J.D.; Kingsbury, K.B.; Abboud, K.A.; McElwee-White, L. *J. Am. Chem. Soc.*, **1994**, *116*, 8629-8637.
- 29 "Reactions of (CO)<sub>5</sub>W(THF) with Triphenylmethyl Azide and Triptycyl Azide," Massey, S.T.; Mansour, B.; McElwee-White, L. *J. Organomet. Chem.*, **1995**, *485*, 123-126.
- 28 "Formation of 1,3-Diene Complexes Upon Protonation of Cyclopropyl Carbyne Complexes," Kingsbury, K.B.; Carter, J.D.; McElwee-White, L.; Ostrander, R.L.; Rheingold, A.L., *Organometallics*, **1994**, *13*, 1635-1640.
- 27 "Photooxidation of Metal Carbynes," McElwee-White, L.; Kingsbury, K.B.; Carter, J.D., *J.*

*Photochem. Photobiol. A: Chem.* **1994**, *80*, 265-270.

- 26 "Formation of Cyclohexenones and 1,4-Dienes Upon Oxidation of Butenyl Carbyne Complexes," Mortimer, M.D.; Carter, J.D.; McElwee-White, L. *Organometallics*, **1993**, *12*, 4493-4498.
- 25 "Regioselective and Stereoselective Formation of Cyclopentenones Upon Photooxidation of Cyclopropyl Carbyne Complexes," Kingsbury, K.B.; Carter, J.D.; Wilde, A.; Park, H.; Takusagawa, F.; McElwee-White, L., *J. Am. Chem. Soc.*, **1993**, *115*, 10056-10065.
- 24 "Photochemistry of Transition Metal Complexes," McElwee-White, L. in *Encyclopedia of Inorganic Chemistry*. King, R.B., Ed. Wiley, London, **1994**, Vol. 6, pp. 3227-3243.
- 23 "Electrophilic Reactions of Zero-Valent Tungsten Nitrene and Hydrazido Complexes with Phosphines. Synthesis and Structure of  $(\text{CO})_4\text{W}(\text{PPh}_2\text{CH}_2\text{PPh}_2\text{NNMe}_2)$ ," Arndtsen, B.A.; Sleiman, H.F.; McElwee-White, L.; Rheingold, A.L. *Organometallics*, **1993**, *12*, 2440-2444.
- 22 "Photooxidation of Molybdenum and Tungsten Carbynes," McElwee-White, L.; Kingsbury, K.B.; Carter, J.D. in *Transition Metal Carbyne Complexes*. Kreißl, F.R., Ed. NATO ASI Series, Kluwer Academic Publishers, Dordrecht, **1993**, pp. 123-125.
- 21 "Photooxidation of Metal Carbynes," McElwee-White, L.; Kingsbury, K.B.; Carter, J.D. in *Photosensitive Metal-Organic Systems. Mechanistic Principles and Applications*. Kutal, C.; Serpone, N., Eds. ACS Advances in Chemistry Series No. 238, **1993**, pp. 335-349.
- 20 "Stabilization of Zero-Valent Hydrazido Complexes by Phosphine Ligands. Crystal Structure of *fac*- $(\text{CO})_3(\text{DPPE})\text{W}=\text{NNMe}_2$ , a Nitrene Analogue to Fischer Carbenes," Arndtsen, B.A.; Schoch, T.K.; McElwee-White, L. *J. Am. Chem. Soc.* **1992**, *114*, 7041-7047.
- 19 "Reactions of Acyl-Substituted Molybdenum Carbyne Complexes under Photooxidative and Thermal Conditions. Formation of Cyclopentenones and Oxymetallacycles," Carter, J.D.; Schoch, T.K.; McElwee-White, L. *Organometallics*, **1992**, *11*, 3571-3578.
- 18 "Metathesis and Diaziridination Reactions of  $(\text{CO})_5\text{W}=\text{C}(\text{OMe})\text{-}p\text{-XC}_6\text{H}_4$  with *cis*-Azobenzene. Electronic and Solvent Effects," Maxey, C.T.; Sleiman, H.F.; Massey, S.T.; McElwee-White, L. *J. Am. Chem. Soc.* **1992**, *114*, 5153-5160.
- 17 "Structure of (Benzo[*c*]cinnoline-*N'*)pentacarbonyl; tungsten," Pham, E.K.; McElwee-White, L. *Acta Crystallographica* **1992**, *C48*, 1120-1121.
- 16 "Evidence for Ambiphilic Behavior in  $(\text{CO})_5\text{W}=\text{NPh}$ . Conversion of Carbonyl Compounds to *N*-Phenyl Imines via Metathesis," Arndtsen, B.A.; Sleiman, H.F.; Chang, A.K.; McElwee-White, L. *J. Am. Chem. Soc.* **1991**, *113*, 4871-4876. DOI: 10.1021/ja00013a024.
- 15 "Direct Observation of the Low Valent Hydrazido Complex  $(\text{CO})_5\text{W}=\text{NNMe}_2$ , a Nitrene Analogue of the Heteroatom-Stabilized Fischer Carbenes," Sleiman, H.F.; Arndtsen, B.A.; McElwee-White, L. *Organometallics* **1991**, *10*, 541-543.
- 14 "Photooxidation of the Molybdenum and Tungsten Carbynes  $(\text{h}^5\text{-C}_5\text{H}_5)\text{L}_2\text{M}^0\text{CR}$  [ $\text{L} = \text{P}(\text{OMe})_3$ , CO and  $\text{R} = \text{Ph}$ , Me, *c*- $\text{C}_3\text{H}_5$ ]," Carter, J.D.; Kingsbury, K.B.; Wilde, A.; Schoch, T.K.; Leep, C.J.; Pham, E.K.; McElwee-White, L. *J. Am. Chem. Soc.* **1991**, *113*, 2947-2954.

- 13 "Formation of Diaziridines by Reaction of  $(\text{CO})_5\text{W}=\text{C}(\text{OMe})\text{Ph}$  with Electron-Deficient Azo Compounds," Maxey, C.T.; McElwee-White, L. *Organometallics* **1991**, *10*, 1913-1916.
- 12 "Formation of Cyclopentenone Upon Photooxidation of the Cyclopropyl Carbyne Complex  $(\text{h}5\text{-C}5\text{H}5)[\text{P}(\text{OCH}_3)_3](\text{CO})\text{W}^\circ\text{C}(\text{c-C}3\text{H}5)$ ," Kingsbury, K.B.; Carter, J.D.; McElwee-White, L. *J. Chem. Soc., Chem. Comm.*, **1990**, 624-625.
- 11 "Trapping of the Low Valent Nitrene Complex  $(\text{CO})_5\text{W}=\text{NPh}$  with  $\text{PPh}_3$ . Formation of the Phenylnitrene Transfer Product  $\text{PhN}=\text{PPh}_3$ ," Sleiman, H.F.; Mercer, S.; McElwee-White, L. *J. Am. Chem. Soc.* **1989**, *111*, 8007-8009.
- 10 "Photochemical" Azo Metathesis by  $(\text{CO})_5\text{W}=\text{C}(\text{OCH}_3)\text{CH}_3$ . Isolation of a Zwitterionic Intermediate," Sleiman, H.F.; McElwee-White, L. *J. Am. Chem. Soc.*, **1988**, *110*, 8700-8701. DOI: 10.1021/ja00234a023.
- 9 "Photooxidation of  $(\text{h}5\text{-C}5\text{H}5)[\text{P}(\text{OMe})_3]_2\text{Mo}^\circ\text{CPh}$  in  $\text{CHCl}_3$ . Intermediacy of a 17-Electron Cationic Metal Carbyne," Leep, C.J.; Kingsbury, K.B.; McElwee-White, L. *J. Am. Chem. Soc.* **1988**, *110*, 7535-7536.
- 8 "Rapid, Multistep Rearrangement of Hydrocarbon Triplet Biradicals at 4 K. A Possible Example of Hot Molecule Effects in Frozen Organic Solvents," Jain, R.; McElwee-White, L.; Dougherty, D.A. *J. Am. Chem. Soc.* **1988**, *110*, 552-560.
- 7 "Radical Mechanism for the Decomposition of  $\text{RuOEP}(\text{CH}_2\text{CH}_3)_2$ . Determination of the Metal-Carbon Bond Dissociation Energy," Collman, J.P.; McElwee-White, L.; Brothers, P.J.; Rose, E. *J. Am. Chem. Soc.* **1986**, *108*, 1332-1333.
- 6 "The Remarkable Oxygen Affinity of a Mixed Valence Dicobalt Cofacial Porphyrin," Le Mest, Y.; L'Her, M.; Collman, J.P.; Hendricks, N.H.; McElwee-White, L.; *J. Am. Chem. Soc.* **1986**, *108*, 533-535.
- 5 "Reactivity of Zero-Valent Metalloporphyrin Dianions Toward Organic Electrophiles," Collman, J.P.; Brothers, P.J.; McElwee-White, L.; Rose, E. *J. Am. Chem. Soc.* **1985**, *107*, 6110-6111.
- 4 "Cleavage of Ruthenium and Osmium Porphyrin Dimers: Formation of Organometallic Ruthenium Porphyrin Complexes and Highly Reduced Metalloporphyrin Species," Collman, J.P.; Brothers, P.J.; McElwee-White, L.; Rose, E.; Wright L.J. *J. Am. Chem. Soc.* **1985**, *107*, 4570-4571.
- 3 "Concerning the Viability of 1,4,6,9-Spiro[4.4]nonatetrayl as a Reactive Intermediate. New Biradical-to-Biradical Rearrangements," McElwee-White, L.; Dougherty, D.A. *J. Am. Chem. Soc.* **1984**, *106*, 3466-3474.
- 2 "Theoretical Studies of 1,4,6,9-Spiro[4.4]nonatetrayl, an Organic Tetraradical," McElwee-White, L.; Dougherty, D.A.; Goddard, W.A. *J. Am. Chem. Soc.* **1984**, *106*, 3461-3466.
- 1 "Symmetrical Intermediates in  $\text{C}_9\text{H}_{12}$  Biradical Rearrangements. Possible Intervention of an Organic Tetraradical," McElwee-White, L.; Dougherty, D.A. *J. Am. Chem. Soc.* **1982**, *104*, 4722-4724.

## Patents

1. "MOCVD of  $WN_x$  Thin Films Using Imido Precursors," McElwee-White, L.; Anderson, T.J.; Johnston, S.W.; Ortiz, C.G.; Bchir, O.J., U.S. patent 6,596,888 issued July 22, 2003.
2. "Tungsten Nitrido Precursors for the CVD of Tungsten Nitride and Oxide Films," McElwee-White, L.; Anderson, T.J.; McClain, K.R.; O'Donohue, C.J., provisional patent filed June 18, 2012, Serial No. 61/661,171. Patent filed June 17, 2013, PCT US2013046390.
3. "Precursors for Electron Beam Induced Deposition of Gold and Silver," McElwee-White, L., Pedziwiatr, J.; Fairbrother, D.H. Patent filed August 26, 2015, PCT US2015046872.
4. "Tungsten Nitrido Precursors for the CVD of Tungsten Nitride, Carbonitride and Oxide Films," McElwee-White, L.; Anderson, T.J.; McClain, K.R.; O'Donohue, C.J., provisional patent filed December 18, 2014, Serial No. 14/575,026. PCT US20150105234.