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Virginia Tech
Department of Chemistry
800 West Campus Dr., Blacksburg, VA 24060

EDUCATION

- 2017 **Ph.D., Chemistry**
Harvard University, Cambridge, MA
Thesis Title: *Open-Shell First-Row Transition Metal Complexes for C–H Functionalization: from Electronic Structure to Catalysis*
- 2012 **B.S. in Chemistry and Mathematics, summa cum laude**
University of Richmond, Richmond, VA

PROFESSIONAL EXPERIENCE

- 2020 – present **Virginia Tech, Blacksburg, VA**
Assistant Professor, Department of Chemistry
- 2017 – 2020 **University of California, Berkeley, Berkeley, CA**
LSRF Postdoctoral Fellow
Advisor: Prof. Christopher J. Chang
- 2012 – 2017 **Harvard University, Cambridge, MA**
Graduate student
Advisor: Prof. Theodore A. Betley
- 2008 – 2012 **University of Richmond, Richmond, VA**
Undergraduate student
Advisor: Prof. William H. Myers; collaboration with Prof. W. Dean Harman (University of Virginia, Charlottesville, VA)

PEER-REVIEWED PUBLICATIONS

* denotes equal contribution

24. Sahoo, D.; **Iovan, D. A.** “Toward understanding highly electron-withdrawing terminal Fe(IV) imides.” *Chem* 2021, 7, 1701–1702 (invited preview article, not peer-reviewed).
23. Dickenson, J. C.; Haley, M. E.; Hyde, J. T.; Reid, Z. M.; Tarring, T. J.; **Iovan, D. A.**; Harrison, D. P. “Fine-Tuning Metal and Ligand-Centered Redox Potentials of Homoleptic Bis-Terpyridine Complexes with 4'-Aryl Substituents.” *Inorg. Chem.* 2021, 60, 9956–9969.
22. Derrick, J. S.; Loipersberger, M.; Chatterjee, R.; **Iovan, D. A.**; Smith, P. T.; Chakarawet, K.; Yano, J.; Long, J. R.; Head-Gordon, M.; Chang, C. J. “Metal–ligand cooperativity via exchange coupling promotes iron-catalyzed electrochemical CO₂ reduction at low overpotentials.” *J. Am. Chem. Soc.* 2020, 142, 20489–20501.
21. Toh, J. D. W.; Crossley, S. W. M.; Bruemmer, K. J.; Ge, E. J.; He, D.; **Iovan, D. A.**; Chang, C. J. “Distinct RNA N-demethylation pathways catalyzed by nonheme iron ALKBH5 and FTO enzymes enable regulation of formaldehyde release rates.” *Proc. Natl. Acad. Sci.* 2020, 117, 25284–25292.

20. Sedgwick, A. C.; Brewster, J. T.; Harvey, P.; **Iovan, D. A.**; Smith, G.; He, X.-P.; Tian, H.; Sessler, J. L.; James, T. D. "Metal-based imaging agents: progress towards interrogating neurodegenerative disease." *Chem. Soc. Rev.* 2020, 49, 2886–2915.
19. Carsch, K. M.; Lukens, J. T.; DiMucci, I. M.; **Iovan, D. A.**; Zheng, S.-L.; Lancaster, K. M.; Betley, T. A. "Electronic structures and reactivity profiles of aryl nitrenoid-bridged dicopper complexes." *J. Am. Chem. Soc.* 2020, 142, 2264–2276.
18. Ohata, J.; Krishnamoorthy, L.; Gonzalez, M. A.; Xiao, T.; **Iovan, D. A.**; Toste, F. D.; Miller, E. W.; Chang, C. J. "An Activity-Based Methionine Bioconjugation Approach To Developing Proximity-Activated Imaging Reporters." *ACS Cent. Sci.* 2020, 6, 32–40.
17. **Iovan, D. A.***; Jia, S.*; Chang, C. J. "Inorganic chemistry approaches to activity-based sensing: from metal sensors to bioorthogonal metal chemistry." *Inorg. Chem.* 2019, 58, 13546–13560.
16. Carsch, K. M.; DiMucci, I. M.; **Iovan, D. A.**; Li, A.; Zheng, S.-L.; Titus, C. J.; Lee, S. J.; Irwin, K. D.; Nordlund, D.; Lancaster, K. M.; Betley, T. A. "Synthesis of a copper-supported triplet nitrene complex pertinent to copper-catalyzed amination." *Science* 2019, 365, 1138–1143.
15. Bartholomew, A. K.; Teesdale, J. J.; Hernández Sánchez, R.; Malbrecht, B. J.; Juda, C. E.; Ménard, G.; Bu, W.; **Iovan, D. A.**; Mikhailine, A. A.; Zheng, S.-L.; Sarangi, R.; Wang, S. G.; Chen, Y.-S.; Betley, T. A. "Exposing the inadequacy of redox formalisms by resolving redox inequivalence within isovalent clusters." *Proc. Natl. Acad. Sci.* 2019, 116, 15836–15841.
14. **Iovan, D. A.**; Wilding, M. J. T.; Baek, Y.; Hennessy, E. T.; Betley, T. A. "Diastereoselective C–H bond amination for disubstituted pyrrolidines." *Angew. Chem. Int. Ed.* 2017, 56, 15599–15602.
13. **Iovan, D. A.**; Wrobel, A. T.; McClelland, A. A.; Scharf, A. B.; Edouard, G. A.; Betley, T. A. "Reactivity of a stable copper–dioxygen complex." *Chem. Commun.* 2017, 53, 10306–10309.
12. Wilding, M. J. T.; **Iovan, D. A.**; Wrobel, A. T.; Lukens, J. T.; MacMillan, S. N.; Lancaster, K. M.; Betley, T. A. "Direct comparison of C–H bond amination efficacy through manipulation of nitrogen-valence centered redox: imido versus iminyl." *J. Am. Chem. Soc.* 2017, 139, 14757–14766.
11. Wilding, M. J. T.; **Iovan, D. A.**; Betley, T. A. "High spin iron imido complexes competent for C–H bond amination." *J. Am. Chem. Soc.* 2017, 139, 12043–12049.
10. Delle Chiaie, K. R.; Biernesser, A. B.; Ortuño, M. A.; Dereli, B.; **Iovan, D. A.**; Wilding, M. J. T.; Li, B.; Cramer, C. J.; Byers, J. A. "The role of ligand redox non-innocence in ring-opening polymerization reactions catalysed by bis(imino)pyridine iron alkoxide Complexes." *Dalton Trans.* 2017, 46, 12971–12980.
9. Culcu, G.; **Iovan, D. A.**; Krogman, J. P.; Wilding, M. J. T.; Bezpalko, M. W.; Foxman, B. M.; Thomas, C. M. "Heterobimetallic complexes comprised of Nb and Fe: isolation of a coordinatively unsaturated Nb^{III}/Fe⁰ bimetallic complex featuring a Nb≡Fe triple bond." *J. Am. Chem. Soc.* 2017, 139, 9627–9636.
8. **Iovan, D. A.**; Betley, T. A. "Characterization of iron-imido species relevant for N-group transfer chemistry." *J. Am. Chem. Soc.* 2016, 138, 1983–1993.
7. Pranckevicius, C.; **Iovan, D. A.**; Stephan, D. W. "Three and four coordinate Fe carbodiphosphorane complexes." *Dalton Trans.* 2016, 45, 16820–16825.
6. Lankenau, A. W.; **Iovan, D. A.**; Pienkos, J. A.; Salomon, R. J.; Wang, S.; Harrison, D. P.; Myers, W. H.; Harman, W. D. "Enantioenrichment of a tungsten dearomatization agent utilizing chiral acids." *J. Am. Chem. Soc.* 2015, 137, 3649–3655.
5. Hennessy, E. T.; Liu, R. Y.; **Iovan, D. A.**; Duncan, R. A.; Betley, T. A. "Iron-mediated intermolecular N-group transfer chemistry with olefinic substrates." *Chem. Sci.* 2014, 5, 1526–1532.

4. Pienkos, J. A.; Zottig, V. E.; **Iovan, D. A.**; Li, M.; Harrison, D. P.; Sabat, M.; Salomon, R. J.; Strausberg, L.; Teran, V. A.; Myers, W. H.; Harman, W. D. "Friedel–Crafts ring-coupling reactions promoted by tungsten dearomatization agent." *Organometallics* 2013, 32, 691–703.
3. Harrison, D. P.; **Iovan, D. A.**; Myers, W. H.; Sabat, M.; Wang, S.; Zottig, V. E.; Harman, W. D. "[4 + 2] Cyclocondensation reactions of tungsten-dihydropyridine complexes and the generation of tri- and tetrasubstituted piperidines." *J. Am. Chem. Soc.* 2011, 133, 18378–18387.
2. Harrison, D. P.; Nichols-Nielander, A. C.; Zottig, V. E.; Strausberg, L.; Salomon, R. J.; Trindle, C. O.; Sabat, M.; Gunnoe, T. B.; **Iovan, D. A.**; Myers, W. H.; Harman, W. D. "Hyperdistorted tungsten allyl complexes and their stereoselective deprotonation to form dihapto-coordinated dienes." *Organometallics* 2011, 30, 2587–2597.
1. Burke, J. P.; Sabat, M.; **Iovan, D. A.**; Myers, W.H.; Chruma, J. J. "Exploring the original proposed biosynthesis of (+)-symbioimine: remote exocyclic stereocontrol in a type I IMDA reaction." *Org. Lett.* 2010, 12, 3192–3195.

PATENTS

Ohata, J.; Krishnamoorthy, L.; Gonzalez, M.; Xiao, T.; **Iovan, D. A.**; Toste, F. D.; Miller, E. W.; Chang, C. J. "In Situ Detection of Signaling Molecules by Chemical Modification and PLA". *Patent disclosure submitted*, July 2019.

SEMINARS

Iovan, D. A. "High-Spin Iron Complexes for C-H Amination: from Electronic Structure to Catalysis." Global Inorganic Discussion Weekdays, August 2021, virtual talk.

Iovan, D. A. "Tuning the Reactivity of First-Row Transition Metals for C–H Bond Functionalization." Virginia Clean Energy and Catalysis Club Summit, August 2021, virtual talk.

Iovan, D. A. "Tuning the Reactivity of First-Row Transition Metals for C–H Bond Functionalization." University of Tennessee at Chattanooga, June 2021, virtual talk.

Iovan, D. A. "Tuning the Reactivity of First-Row Transition Metals for C–H Bond Functionalization." James Madison University, October 2020, virtual talk.

Iovan, D. A. "Tuning the Reactivity of First-Row Transition Metals for C–H Bond Functionalization." North Carolina A&T State University, September 2020, virtual talk.

Iovan, D. A.; Chang, C. J. "Using Chemical Tools to Identify New Copper-Protein Interactions." Organometallic Chemistry Gordon Research Seminar, Newport, RI, July 2019.

Iovan, D. A.; Betley, T. A. "Characterization of Iron-Imido Species Relevant to *N*-group Transfer Chemistry." American Chemical Society National Meeting, Boston, MA, August 2015 (*invited talk – Inorganic Young Investigator Awards*).

Iovan, D. A.; Betley, T. A. "Characterization of Iron-Imido Species Relevant for *N*-group Transfer Chemistry." Department of Chemistry and Chemical Biology Student Seminar, Harvard University, February 2017.

Iovan, D. A.; Betley, T. A. “Characterization of Iron-Imido Species Relevant to *N*-group Transfer Chemistry.” Organometallic Gordon Research Conference, Newport, RI, July 2016 (*selected talk from poster presentations*).

Iovan, D. A.; Betley, T. A. “Characterization of Iron-Imido Species Relevant to *N*-group Transfer Chemistry.” Organometallic Gordon Research Seminar, Newport, RI, July 2016.

Iovan, D. A.; Betley, T. A. “Characterization of Iron-Imido Species Relevant for *N*-group Transfer Chemistry.” University of Richmond Symposium, Richmond, VA, April 2016 (*invited talk*).

Iovan, D. A.; Betley, T. A. “Characterization of Iron-Imido Species Relevant to *N*-group Transfer Chemistry.” American Chemical Society National Meeting, Boston, MA, August 2015.

Iovan, D. A.; Hennessy, E. T.; Betley, T. A. “Catalytic Stereoselective C–H Bond Amination Using Iron Dipyrrromethene Complexes.” American Chemical Society National Meeting, San Francisco, CA, August 2014.

Iovan, D. A.; Hennessy, E. T.; Betley, T. A. “Catalytic C–H Bond Amination Using a New Class of Iron Catalysts.” American Chemical Society National Meeting, New Orleans, LA, April 2013.

AWARDS

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| 2022 | Dean Discovery Fund, Virginia Tech College of Science |
| 2018–2021 | Life Sciences Research Foundation postdoctoral fellowship sponsored by Howard Hughes Medical Institute |
| 2018 | Division of Inorganic Chemistry Young Investigator Award, American Chemical Society |
| 2018 | Howard Hughes Medical Institute Hanna Gray Fellow Finalist |
| 2015 | Dudley R. Herschbach Teaching Award (Harvard University) |
| 2014 | Certificate of Distinction in Teaching (Harvard University) |
| 2012 | Garnett Ryland Award – best graduate in chemistry (University of Richmond) |
| 2012 | David C. Evans award for outstanding achievement in scholarship (1 of 2 awards, University of Richmond) |
| 2011 | American Chemical Society Undergraduate Award in Inorganic Chemistry |
| 2009–2010 | Howard Hughes Medical Institute Summer Fellowship |
| 2008–2012 | Richmond Scholars Robins Science Scholarship |

TEACHING AND MENTORING EXPERIENCE

Courses

Advanced Inorganic Chemistry – CHEM 5404 (Fall 2020, 2021)

External Training

Broadening Participation: 2020 MPS Workshop for New Investigators organized by the National Science Foundation, November 2020

OUTREACH ACTIVITIES

- 2020 – present **Chemistry Women Mentorship Network**
Mentor
- 2021 **Talaria Research Program, ATHENA – Women in STEM**
Mentored a high school student on researching and writing a review paper on sustainable alternatives to plastics through weekly or bi-weekly virtual meetings.
- 2019 **Amgen Scholars Summer Research Program, UC Berkeley**
Mentored one undergraduate student during a 10-week summer research program.
- 2018 – 2020 **Bay Area Scientists in Schools Program, Community Resources for Science**
Engage with 4th grade students at different elementary schools across the Bay area through monthly hands-on lessons on renewable energy, as part of a team.
- 2019 **Kaiser Elementary Science Fair, Community Resources for Science**
Interacted with elementary school students about their science projects.
- 2018 **Expanding Your Horizons in Science and Mathematics Conference, UC Berkeley**
Volunteered to help with a 1-day event for 5th – 8th grade girls, meant to help them explore career opportunities in mathematics, science, engineering, computer science, and technology.
- 2018 – 2019 **Women in Science and Engineering Professional Mentorship, UC Berkeley**
Mentored an undergraduate student over 1 year as part of a program meant to promote women in STEM.
- 2016 – 2017 **Women in Science, Technology, Engineering, and Mathematics, Harvard University**
Mentored an undergraduate student through monthly meetings meant to discuss opportunities for women in STEM and share my graduate school experience.

PROFESSIONAL ACTIVITIES

Journal reviewer for Journal of the American Chemical Society, Inorganic Chemistry, ACS Catalysis, Dalton Transactions, Inorganica Chimica Acta, Cell Reports Physical Science.

Grant reviewer for NSF and ACS PRF.