

Nicholas D. Ball, Ph. D.

Assistant Professor of Chemistry
Pomona College
Department of Chemistry
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EDUCATION:

University of Michigan – Ann Arbor, Ann Arbor, Michigan 2005 - 2010
Doctor of Philosophy in Chemistry, Organic Chemistry
Advisor: Professor Melanie S. Sanford
Dissertation Title: Synthesis and Reactivity of Palladium Trifluorides and Fluorides Towards Aryl C–CF₃ and C–F Bond Formation
Thesis Defense: December 11, 2010; Degree Conferred April 2011.

Macalester College, St. Paul, Minnesota 2001 - 2005
Bachelor of Arts in Chemistry
Research Advisor: Professor Ronald G. Brisbois
Academic Advisor: Professor Jan Serie

EMPLOYMENT:

Pomona College – Claremont, California 2015 - present
Assistant Professor of Chemistry

University of British Columbia, Vancouver, British Columbia, Canada 2018 - 2019
Visiting Assistant Professor of Chemistry (With Dr. Jennifer Love Group)

Amherst College – Amherst, Massachusetts 2013 - 2015
Assistant Professor of Chemistry

California Institute of Technology – Pasadena, California 2011 - 2013
NIH (F32) Postdoctoral Fellow and Postdoctoral Fellow in Chemical Engineering
Advisor: Professor David A. Tirrell

FELLOWSHIPS AND GRANTS

NIH R15 grant Awarded (R15GM134457, \$395,145) 2020-23
Hirsch Research Initiation Grant (\$5,600) 2018-20
American Chemical Society Petroleum Research Fund UNI Award (\$55,000) 2014-18
Professional Development Network Grant – Pomona College (\$2,500) 2015-16
Wig Fund Curriculum Development Grant (\$600) 2016
NSF CAREER (Reviewed, not funded) 2016

HONORS AND AWARDS

Wig Distinguished Professor Award for Excellence in Teaching	2018
Ruth L. Kirschstein Postdoctoral National Research Service Award (F32)	2011-2014
Ruth L. Kirschstein Predoctoral National Research Service Award (F31)	2009-2011
Beckman Scholars Award	2003-2004
ACS Scholars Award	2001-2005

RESEARCH PUBLICATIONS:

The following publications are all peer-reviewed articles.

Google Scholar Metrics: <https://scholar.google.com/citations?user=oN1YD8EAAAAJ&hl=en>

Research Gate profile: https://www.researchgate.net/profile/Nicholas_Ball6

INDEPENDENT CAREER

Undergraduate co-authors are underlined with graduation year.

1. Mahapatra, S.; Woroch, C. P. ('19); Butler, T. W.; Carneiro, S. N. ('21); Kwan, S. C. ('20); Khasnavis, S. R. ('21); Gu, J. ('21); Dutra, J. K.; Vetelino, B. C.; Bellenger, J.; am Ende, C. W., and **Ball, N. D.** SuFEx Activation with Ca(NTf₂)₂: A Unified Strategy to Access Sulfamides, Sulfamates and Sulfonamides from S(VI) Fluorides. *Org. Lett.* ASAP [[link](#)]
2. **Ball, N. D.** "Properties and Applications of S(VI) Fluorides" in *Emerging Fluorinated Motifs. Properties, Synthesis and Applications*, Cahard, D., Ma, J.-A., Eds.; Wiley-VCH Verlag GmbH & Co: Weinheim, 2020: 621-674.
3. Lee, C.; **Ball, N. D.**; and Sammis, G. M. One-Pot Fluorosulfurylation of Grignard Reagents Using Sulfuryl Fluoride. *Chem. Comm.* **2019**, 55, 14753-14756. [[link](#)]
4. Mukherjee, P.; Woroch, C. P. W. ('19); Cleary, L.; Rusznak, M. ('18); Franzese, R. W. ('19); Reese, M. R.; Tucker, J. W.; Humphrey, J. M. ('19); Etuk, S. M. ('20); Kwan, S. C.; am Ende, C. W., and **Ball, N. D.** Sulfonamide Synthesis via Calcium Triflimide Activation of Sulfonyl Fluorides. *Org. Lett.* **2018**, 20, 3943-3947. [[link](#)]
5. Tribby, A. L. ('17); Rodríguez, I. ('16); Shariffudin, S. (AC '15); **Ball, N. D.**; Pd-Catalyzed Conversion of Aryl Iodides to Sulfonyl Fluorides Using SO₂ Surrogate DABSO and Selectfluor. *J. Org. Chem.* **2017**, 82, 2294-2299. [[link](#)]
 - o This work is highlighted in a virtual issue of *Organometallics* featuring undergraduate research programs [[link](#)]

PREVIOUS PUBLICATIONS (GRADUATE WORK)

1. Racowski, J. M.; **Ball, N. D.**; Sanford, M. S. Aryl C–H Activation at Pd(IV) Centers. *J. Am. Chem. Soc.* **2011**, 133, 18022-18025. [[link](#)]

2. **Ball, N. D.**; Gary, J. B.; Ye, Y.; Sanford, M. S. Mechanistic and Computational Studies of Oxidatively-Induced Aryl-CF₃ Bond-Formation at Pd: Rational Design of Room Temperature Aryl Trifluoromethylation. *J. Am. Chem. Soc.* **2011**, *133* 7577-7584. [\[link\]](#)
3. Ye, Y.; **Ball, N. D.**; Kampf, J. W.; Sanford, M. S. Oxidation of Catalytically Relevant Palladium Dimer with "CF₃⁺: Formation and Reactivity of a Monomeric Palladium(IV) Aquo Complex. *J. Am. Chem. Soc.* **2010**, *132*, 14682-14687. [\[link\]](#)
4. **Ball, N. D.**; Kampf, J. W.; Sanford, M. S. Aryl C-CF₃ Bond Forming Reductive Elimination from a Palladium(IV) Complex. *J. Am. Chem. Soc.* **2010**, *132*, 2878-2879. [\[link\]](#)
5. **Ball, N. D.**; Kampf, J. W.; Sanford, M. S. Synthesis and Reactivity of Palladium(II) Fluoride Complexes Containing Nitrogen-Donor Ligands. *Dalton Trans.* **2010**, *39*, 632-640. [\[link\]](#)
6. **Ball, N. D.**; Sanford, M. S. Synthesis and Reactivity of a Mono-σ-Aryl Palladium(IV) Fluoride Complex. *J. Am. Chem. Soc.* **2009**, *131*, 3796-3797. [\[link\]](#)

PROFESSIONAL PRESENTATIONS:

1. **Ball, N.D.** Unlocking Fluorine: Activation of Sulfur(VI) Fluorides Toward New Sulfur-Fluorine Exchange (SuFEx) Click Reactions. Workshop on Synthetic Organic Chemistry, Steamboat Springs, CO. August 6-8, 2019. [\[Link\]](#)
 - One of 15 pre-tenured faculty members selected to attend this workshop out of 120 junior faculty across U.S. and Canada. I was the sole faculty member from a PUI.
2. **Ball, N.D.** Unlocking Fluorine: Activation of Sulfur(VI) Fluorides Toward New Sulfur-Fluorine Exchange (SuFEx) Click Reactions. Barnard College. April 23th, 2019.
3. **Ball, N.D.** Unlocking Fluorine: Activation of Sulfur(VI) Fluorides Toward New Sulfur-Fluorine Exchange (SuFEx) Click Reactions. Santa Clara University. April 11th, 2019.
4. **Ball, N.D.** Unlocking Fluorine: Activation of Sulfur(VI) Fluorides Toward New Sulfur-Fluorine Exchange (SuFEx) Click Reactions. Denison University. November 6th, 2018.
5. **Ball, N.D.** Unlocking Fluorine: Activation of Sulfur(VI) Fluorides Toward New Sulfur-Fluorine Exchange (SuFEx) Click Reactions. University of British Columbia. October 18th, 2018.
6. **Ball, N.D.** Lewis Acid Mediated Activation of Aryl and Alkyl Sulfonyl Fluorides Toward Sulfonamides. Macalester College. September 26th, 2018.
7. **Ball, N. D.**; Woroch, C. P.*; Rusznak, M.; Cleary, L., Mukherjee, P.; am Ende, C.; Reese, M. R.; Tucker, J. W.; Humphrey J. M.; Franzese*, R. W.; Etuk*, S.M.; Kwan, S. C.* Calcium Triflimide Activation of Sulfonyl Fluorides to Sulfonamides. Oral and Poster Presentation. 22nd International Symposium on Fluorine Chemistry, Oxford, UK, July 2018.
8. **Ball, N. D.**; Woroch, C. P.; Rusznak, M.; Cleary, L., Mukherjee, P.; am Ende, C.; Reese, M. R.; Tucker, J. W.; Humphrey J. M.; Franzese, R. W.; Etuk, S.M.; Kwan, S. C. Lewis Acid-Mediated Activation of Aryl and Alkyl Sulfonyl Fluoride towards Sulfonamides. Invited Oral Presentation. American Chemical Society National Meeting, New Orleans, LA, March 2018.
9. **Ball, N. D.**; Rodriguez, I; Tribby, A. L.*; Shariffudin, S.* One-Pot Pd-catalyzed Synthesis of Aromatic Sulfonyl Fluorides. Poster Presentation. Poster Presentation Japanese-American Kavli Frontiers in Science Symposium (National Academy of Sciences), Irvine, CA December 2016.
10. **Ball, N. D.**; Rodríguez, I.; Tribby, A. L.*; Shariffudin, S.* One-pot Pd-catalyzed Synthesis of Aromatic Sulfonyl Fluorides. Oral Presentation. 252nd American Chemical Society National Meeting, Philadelphia, PA, August 2016.
11. **Ball, N. D.** ACS Scholars Program Rising Stars in Academe. Oral Presentation and Panelist. 250th American Chemical Society National Meeting and Exposition, Philadelphia, PA, August 2, 2015.

PROFESSIONAL MEMBERSHIP AND ACTIVITIES:

Elected councilor for Council of Undergraduate Research Chemistry (CUR)	2020 - present
Member of the Data Chemist Network – Center for Computed Assisted Synthesis (NSF)	2020 - present
Member of the Network for Diversity in Chemical Research– Center for Selective C–H Functionalization (NSF)	2019 – present
Panelist for NIH Study Session (NIGMS, SBCB)	2020
Panelist for NSF Study Session	2020
Reviewer for the following publications:	2012 - present
Journal of the American Chemical Society, Proceeding of the National Academy of Sciences, Journal of Organic Chemistry, Chemical Reviews, Chemical Science, Coordination Chemistry Reviews, Organic Letters, Accounts of Chemical Research, Beilstein Journal of Organic Chemistry, European Journal of Organic Chemistry	
American Chemical Society	2001- present

STUDENTS MENTORED IN RESEARCH PROGRAM:

Pomona College

Sabrina Carneiro (Chemistry '21, Thesis Student and Linares Scholar , Pomona College)	Summer 2019 - current
Jonathan Elisabeth (Chemistry '23, Pomona College)	Spring 2020 - current
Evan Flitz (Chemistry '22, Pomona College)	Fall 2019 – current
Nathan Friede (Chemistry '22, Pomona College)	Fall 2019 – current
Junha Gu (Chemistry '21, Thesis Student , Pomona College)	Fall 2019 – current
Samuel Khasnavis ('20, Thesis Student and Beckman Scholar , Pomona College)	Summer 2019- current
Sabrina Kwan ('20, Pomona College)	Summer 2017 - 2020
Christopher Ahn (Biochemistry'18, Claremont McKenna College)	Summer 2017 - 2018
Sarah Etuk (Neuroscience'19, Pomona College)	Summer 2017 - 2018
Ryan Franzese (Chemistry '19, Pomona College)	Summer 2017 -2018
Edward Gao (Chemistry '19, Pomona College)	Summer 2017
Nicholas Lewis (Chemistry '19, Pomona College)	Summer 2017 - 2019
Bryan Santti (Molecular Biology, '19, Pomona College)	Summer 2017 - 2018
Mark Rusnak (Chemistry '18, Thesis Student , Pomona College)	Summer 2016 - 2019
Neil Chan (Chemistry '18, Thesis Student , Pomona College)	Summer 2016 - current
Christian Woroch (Chemistry '19, Pomona College; Thesis Student, Beckman, ACS Scholar, NSF Grad Fellow)	Summer 2016 - current
Ashish Streatfield (Chemistry '17, Thesis Student , Pomona College)	Summer 2016 - May 2017
Melissa Petito (Neuroscience'19, Pomona College)	Summer 2016 – Dec. 2016
Cynthia Nyongesa ('19, Pomona College)	Summer 2016
Ariana Tribby (Chemistry '17, Pomona College, Ph.D. program Caltech)	Summer 2015 - June 2016
Phillip Clayman (Chemistry '16, Thesis Student , Pomona College)	Summer 2015 - May 2016
Ismerai Rodriguez (Chemistry'16, Thesis Student , Pomona College)	Summer 2015 - May 2016
Evan DeLorenzo (Media Studies '17, Pomona College)	Summer 2015

Amherst College

Joyce Wamala ('17E)	Spring 2015
Daniela Garcia ('14; Post-Baccalaureate Scholar)	Fall 2014 - Spring 2015
Stuart McKenzie (Chemistry, '16)	Summer 2014
Shamira Shariffudin (Chemistry, '15, Thesis Student)	Summer 2014 - current
John Stockman (Chemistry, '15, Thesis Student)	Summer 2014 - current

Conner Reilly (Chemistry, '16)
Xiao Xiao (Chemistry, '16)
Christine Bierema (Chemistry, '14, **Thesis Student**, Summa Cum Laude)

Winter 2014 - current
Winter 2014 - current
Summer 2013 – May 2014