



Barry Trost

Job and Gertrud Tamaki Professor in the School of Humanities and Sciences, Emeritus

Chemistry

 Curriculum Vitae available Online

CONTACT INFORMATION

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Bio

BIO

Born in Philadelphia, Pennsylvania, Barry Trost began his university training at the University of Pennsylvania (BA, 1962) and completed his Ph.D. in Chemistry at the Massachusetts Institute of Technology (1965). He moved directly to the University of Wisconsin, where he was promoted to Professor of Chemistry and subsequently Vilas Research Professor. He joined the faculty at Stanford as Professor of Chemistry in 1987 and became Tamaki Professor of Humanities and Sciences in 1990. In addition to serving multiple visiting professorships, Professor Trost was presented with a Docteur honoris causa of the Université Claude-Bernard (Lyon I), France, and in 1997 a Doctor Scientiarum Honoris Causa of the Technion, Haifa, Israel. In recognition of his innovations and scholarship in the field of organic synthesis, Professor Trost has received the ACS Award in Pure Chemistry, ACS Award for Creative Work in Synthetic Organic Chemistry, Arthur C. Cope Scholar Award, and the Presidential Green Chemistry Challenge Award, among many others. Professor Trost has been elected a Fellow of the American Academy of Arts and Sciences, American Chemical Society, and American Association for the Advancement of Science, and a member of the National Academy of Sciences, and served as Chairman of the NIH Medicinal Chemistry Study Section. He has held over 125 special university lectureships and presented over 270 Plenary Lectures at national and international meetings. He has published two books and over 950 scientific articles. He edited a major compendium entitled Comprehensive Organic Synthesis consisting of nine volumes and serves on the editorial board for Science of Synthesis and Reaxys.

The Trost Group's research program revolves around the theme of synthesis, including target molecules with potential applications as novel catalysts, as well as antibiotic and antitumor therapies. The work comprises two major activities: 1) developing the tools, i.e., the reactions and reagents, and 2) creating the proper network of reactions to make complex targets readily available from simple starting materials.

Efforts to develop "chemists' enzymes" – non-peptidic transition metal based catalysts that can perform chemo-, regio-, diastereo-, and especially enantioselective reactions – focus close attention to the question of atom economy to minimize waste, energy, and consumption of raw materials.

Synthetic efficiency raises the question of metal catalyzed cycloadditions to rings other than six-membered. A general strategy is evolving for a "Diels-Alder" equivalent for formation of five, seven, nine, etc. membered carbo- and heterocyclic rings.

An exciting new direction derives from the molecular gymnastics acetylenes undergo in the presence of transition metals. Additional specific goals include cycloisomerization to virtually all types of ring sizes and systems with particularly versatile juxtaposition of functionality.

Palladium and ruthenium catalysts represent a major part of the lab's efforts, in order to invent new synthetic processes together with new opportunities for selectivity complementary to that obtained using other metal complexes. Main group chemistry, especially involving silicon, zinc, and sulfur, also offers many opportunities for new reaction design. Rational design of novel catalysts for asymmetric additions to carbonyl and imine groups are an exciting thrust. From these new synthetic tools evolve new synthetic strategies towards complex natural products. Targets include β -lactam antibiotics, ionophores, steroids and related compounds (e.g., Vitamin D metabolites), alkaloids, nucleosides, carbohydrates, and macrolide, terpenoid, and tetracyclic antitumor and antibiotic agents.

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Chemistry

HONORS AND AWARDS

- Linus Pauling Medal Award, Puget Sound, Oregon, and Portland Sections of the American Chemical Society (2015)
- Tetrahedron Prize, Tetrahedron Publications, Elsevier (2014)
- August-Wilhelm-von-Hofmann Denkmuenze, German Chemical Society (2014)
- Ryoji Noyori Prize, Society of Synthetic Organic Chemistry, Japan (2013)
- Arthur C. Cope Award, American Chemical Society (2004)
- Herbert C. Brown Award for Creative Research in Synthetic Methods, American Chemical Society (1999)
- Presidential Green Chemistry Challenge Award, US EPA Office of Chemical Safety and Pollution Prevention (1998)
- Roger Adams Award, American Chemical Society (1995)
- Award for Creative Work in Synthetic Organic Chemistry, American Chemical Society (1981)
- Award in Pure Chemistry, American Chemical Society (1977)
- Junichiro Tanaka Distinguished Achievement Award, International Precious Metal Institute (2014)
- Distinguished Alumni Award, Penn Chemistry (2013)
- Excellence in Medicinal Chemistry Award, Israel Chemistry Society (2013)
- Fellow, American Chemical Society (2012)
- Kitasato Microbial Chemistry Medal, Kitasato Institute (2008)
- Kosolapoff Award, Auburn Section, American Chemical Society (2008)
- Nagoya Medal, Banyu Life Sci. Foundation Int'l and Institute of Transformative Bio-Molecules, Nagoya U. (2008)
- Thomson Scientific Laureate, Thomson Reuters (2007)
- John C. Scott Award, City of Philadelphia (2004)
- Nobel Laureate Signature Award for Graduate Education, American Chemical Society (2002)
- Yamada Prize, Japan (2001)
- Elsevier Award, Belgium Organic Synthesis Symposium (2000)
- Nichols Medal, New York Section, American Chemical Society (2000)
- Merck-Schuchardt Lecturer, French Chemical Society (1998)
- SCI-ACS (Joint Italian-American Chemical Societies) Lecturer, Joint Italian-American Chemical Societies (1998)
- Doctor Scientiarum Honoris Causa, Technion, Haifa, Israel (1997)

- Docteur Honoris Causa, Université Claude Bernard (Lyon-I), France (1994)
- Bing Teaching Award, Stanford University (1993)
- Pfizer Senior Faculty Award, Pfizer Corporation (1992)
- ASSU Graduate Teaching Award, Stanford University (1991)
- Dr. Paul Janssen Prize for Creativity in Organic Synthesis, Belgian Organic Synthesis Symposium (1990)
- Ernest Guenther Award in the Chemistry of Essential Oils and Related Products, American Chemical Society (1990)
- Arthur C. Cope Scholar Award, American Chemical Society (1989)
- Hamilton Award, University of Nebraska (1988)
- MERIT Award of the National Institutes of General Medical Sciences, National Institutes of Health (1988)
- Nebraska Admiral, State of Nebraska (1988)
- Kentucky Colonel, State of Kentucky (1987)
- Alexander von Humboldt Stiftung Award, Alexander von Humboldt-Stiftung/Foundation (1984)
- Chemical Pioneer, American Institute of Chemists (1983)
- First Allen R. Day Award, Philadelphia Organic Chemist's Club (1983)
- Medal of the University of Helsinki, University of Helsinki (1983)
- Fellow, American Academy of Arts & Sciences (1982)
- Centenary Lecturer, Royal Society of Chemistry, UK (1981-82)
- Baekeland Award, North Jersey Section, American Chemical Society (1981)
- Julius Stieglitz Memorial Lecturer, Chicago Section, American Chemical Society (1980-81)
- Member, National Academy of Sciences (1980)
- Fellow, American Association for Advancement of Science (1977)
- Fellow, American-Swiss Foundation (1975)
- H.I. Romnes Faculty Fellowship, UW-Madison Wisconsin Alumni Research Foundation (1975)
- Dreyfus Teacher-Scholar, Camille & Henry Dreyfus Foundation (1970-75)
- Sloan Fellow, Alfred P. Sloan Foundation (1967-69)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Editorial Advisory Board Member, Reaxys (CrossFire Beilstein) Database (2007 - present)
- Member, CAL/EPA Green Chemistry Scientific Advisory Panel (2007 - 2007)
- Member, NRC Committee on the Review of Basic Energy Sciences Catalysis Program (2007 - 2007)
- Editorial Board Member, Chemistry - An Asian Journal (2006 - present)
- Editorial Advisory Board Member, Beilstein Journal of Organic Chemistry (2005 - present)
- Editorial Board Member, Central European Journal of Chemistry (2003 - present)
- Editorial Board Member, Proceedings of the National Academy of Sciences (2003 - 2006)
- Editorial Advisory Board, Journal of Organic Chemistry (2002 - 2006)
- Organizing Committee, Mesilla Conference (2002 - 2002)
- Editorial Advisory Board Member, Accounts of Chemical Research (2001 - 2003)
- Visiting Committee, Department of Chemistry, Vanderbilt University (2001 - 2001)
- Editorial Advisory Board Member, Advanced Synthesis and Catalysis (2000 - present)
- Member, NRC Advisory Board for the Division on Engineering and Physical Sciences (2000 - 2002)

- Member, NICHD Review Panel (2000 - 2000)
- Visiting Committee Member, Department of Chemistry, U. of Pennsylvania (2000 - 2000)
- Editorial Advisory Board Member, Organic Letters (1999 - present)
- Editorial Board Member, Green Chemistry (1999 - present)
- Editorial Board Member, Natural Products Letters (1998 - present)
- Member, Committee of Visitors, Division of Chemistry, National Science Foundation (1998 - 1998)
- Program Review Committee Member, Weizmann Institute of Science, Israel (1998 - 1998)
- International Advisory Board Member, Current Organic Chemistry (1997 - present)
- Jury Member, Springer Award for Organometallic Chemistry (1997 - 1997)
- Advisory Board Member, Bulletin de la Société Chimique de France (1996 - 1997)
- Editor, Foundations of Organic Chemistry series, Thieme Verlag (1995 - present)
- Editorial Board Member, Chemistry - A European Journal (1995 - present)
- Editorial Board Member, Science of Synthesis, Houben-Weyl Methods of Molecular Transformations (1995 - present)
- Member, National Research Council Commission on Engineering and Technical Systems (1994 - 2000)
- Editor, Stereocontrolled Organic Synthesis. Chemistry of the 21st Century, IUPAC Blackwell Scientific Pubs (1994 - 1994)
- Jury Member, Thieme-IUPAC Prize in Synthetic Organic Chemistry (1994 - 1994)
- Organizer, US-Former Soviet Union Workshop on Organic Synthesis, Stanford (1994 - 1994)
- Visiting Committee Member, Department of Chemistry, Texas A&M University (1994 - 1994)
- Editor, CHEMTRACTS-Organic Chemistry (1993 - present)
- Visiting Committee Member, Department of Chemistry, University of Pittsburgh (1993 - 1993)
- Editorial Board Member, Natural Products Letters (1992 - 2002)
- Member, Tetrahedron Board of Consulting Editors (1992 - 2002)
- International Editorial Board Member, Journal of the Chemical Society-Perkin I (1992 - 1997)
- Canvassing Committee, ACS Cope Award (1992 - 1995)
- Member, NRC Committee on Alternative Chemical Demilitarization Technologies (1992 - 1993)
- Chairman, Visiting Committee for Department of Chemistry, Iowa State U. (1991 - 1991)
- Editor-in-Chief, Comprehensive Organic Synthesis, Pergamon Press (1991 - 1991)
- Member, Board of Editors, Heteroatom Chemistry (1989 - present)
- Member, Editorial Advisory Board, Chemical & Engineering News (1989 - 1992)
- Member, Ciba Foundation Discussion on Molecular Recognition in Synthesis (1988 - 1988)
- Member, NIH Institute of General Medical Sciences Council Ad-Hoc Member (1988 - 1988)
- Member, NSF Presidential Young Investigator Panel (1988 - 1988)
- Visiting Committee Member, Department of Chemistry, Ohio State University (1988 - 1988)
- Member, International Advisory Committee, VI International Conference on Organic Synthesis, Moscow, USSR (1986 - 1986)
- U.S. Organizer, U.S.-Swedish Joint Seminar on Synthetic Selectivity, Tynningo, Sweden (1986 - 1986)
- Award Committee Member, American Institute of Chemists' Chemical Pioneers Award (1985 - present)
- Member, American Academy of Arts and Sciences-Midwest Center Council (1985 - present)
- Member, Editorial Advisory Board, Synthesis (1985 - 2008)
- Participant Selection Committee Member, NSF Organometallic Chemistry Workshop (1985 - 1985)

- Visiting Committee Member, Department of Chemistry, University of Michigan (1985 - 1985)
- Chairman, Review Committee for Department of Chemistry, U. Michigan (1984 - 1984)
- Editor, with W. Bartmann, *Selectivity - A Goal for Synthetic Efficiency*, Verlag Chemie (1984 - 1984)
- One of Five Invited U.S. Participants, U.S.-Swedish Workshop on the Future of Chemistry (1984 - 1984)
- Canvassing Committee Member, Roger Adams Award in Organic Chemistry (1983 - 1989)
- Member, Research Briefing Panel on Chemistry, National Academy of Sciences (1983 - 1983)
- Scientific Organizer, Hoechst Workshop, Reischensberg, West Germany (1983 - 1983)
- Member and Chairman (1984-6), NIH Medicinal Chemistry A Study Section (1982 - 1986)
- Member, Swedish Natural Science Research Council and Swedish Board for Technical Development Review Panel on Organic and Bioorganic Chemistry (1982 - 1982)
- Science Advisory Council Member, ARCO (1981 - 1987)
- Member, Editorial Advisory Board, *Organometallics* (1981 - 1985)
- Technical Advisory Panel Member, Indicators of Scientific Research Instrumentation in Academic Institutions (1981 - 1983)
- Editor, with C.R. Hutchinson, *Synthesis Today and Tomorrow*, Pergamon Press (1981 - 1981)
- Member, Committee on Chemical Sciences, National Academy of Sciences (1980 - 1983)
- Award Committee Member, ACS Award for Creative Work in Synthetic Organic Chemistry (1980 - 1982)
- Organizing Committee Chairman, 3rd IUPAC Symposium on Organic Synthesis (1980 - 1980)
- U.S. Delegation to People's Republic of China, Chemistry of Natural Products (1980 - 1980)
- Jury Member, ACS Chicago Section Willard Gibbs Medal (1979 - 1985)
- Evaluation Panel Member, NRC Postdoctoral Fellowships (1978 - 1978)
- Executive Committee Member, ACS Division of Organic Chemistry (1977 - 1979)
- Organizing Committee Member, Roussel "Table Ronde" on Selectivity in Organic Synthesis (1977 - 1978)
- Associate Editor, *Journal of the American Chemical Society* (1974 - 1980)
- Advisory Panel Member, NSF Chemistry Section (1973 - 1977)
- Member, Advisory Board of Editors, *Journal of Organic Chemistry* (1973 - 1977)
- Member, Active Editorial Board, *Organic Reactions Series (books)* (1972 - 1981)
- Canvassing Committee Member and Chairman, ACS Award for Creative Work in Synthetic Organic Chemistry (1972 - 1976)

PROFESSIONAL EDUCATION

- PhD, Massachusetts Institute of Technology , Chemistry (1965)
- BA with honors, University of Pennsylvania , Chemistry (1962)

LINKS

- The Trost Research Group: <http://web.stanford.edu/group/bmtrst/>

Publications

PUBLICATIONS

- **ProPhenol Derived Ligands to Simultaneously Coordinate a Main Group-Metal and a Transition Metal: Application to a Zn-Cu Catalyzed Reaction.** *Chemistry (Weinheim an der Bergstrasse, Germany)*
Trost, B. M., Zhang, G., Xu, M., Qi, X.
1800
- **Palladium-catalyzed asymmetric allylic alkylation (AAA) with alkyl sulfones as nucleophiles.** *Chemical science*

- Trost, B. M., Jiao, Z., Gholami, H.
2021; 12 (31): 10532-10537
- **Total Synthesis of Kadococcinic Acid A Trimethyl Ester.** *Journal of the American Chemical Society*
Trost, B. M., Zhang, G., Gholami, H., Zell, D.
2021
 - **Palladium-catalyzed asymmetric allylic alkylation (AAA) with alkyl sulfones as nucleophiles** *CHEMICAL SCIENCE*
Trost, B. M., Jiao, Z., Gholami, H.
2021
 - **Catalytic Asymmetric Synthesis of the Pentacyclic Core of (+)-Citridinadin A.** *Organic letters*
Trost, B. M., Taft, B. R., Tracy, J. S., Stivala, C. E.
2021
 - **Pd-Catalyzed Regio-, Diastereo-, and Enantioselective [3 + 2] Cycloaddition Reactions: Access to Chiral Cyclopentyl Sulfones.** *Organic letters*
Trost, B. M., Zhu, C., Ence, C. C.
2021
 - **Pd(0)-Catalyzed Diastereo- and Enantioselective Intermolecular Cycloaddition for Rapid Assembly of 2-Acyl-methylenecyclopentanes.** *Organic letters*
Trost, B. M., Zuo, Z., Wang, Y.
2021
 - **Regiodivergent Synthesis of Spirocyclic Compounds through Pd-Catalyzed Regio- and Enantioselective [3+2] Spiroannulation.** *Angewandte Chemie (International ed. in English)*
Trost, B. M., Zuo, Z. n.
2021
 - **Zn-ProPhenol Catalyzed Enantioselective Mannich Reaction of 2H-Azirines with Alkynyl Ketones.** *Organic letters*
Trost, B. M., Zhu, C.
2020
 - **Palladium-Catalyzed Enantioselective Cycloadditions of Aliphatic 1,4-Dipoles: Access to Chiral Cyclohexanes and Spiro [2.4] heptanes.** *Journal of the American Chemical Society*
Trost, B. M., Jiao, Z., Liu, Y., Min, C., Hung, C. J.
2020
 - **Pd(0)-Catalyzed Chemo-, Diastereo-, and Enantioselective alpha-Quaternary Alkylation of Branched Aldehydes** *ACS CATALYSIS*
Trost, B. M., Zuo, Z., Wang, Y., Schultz, J. E.
2020; 10 (16): 9496–9503
 - **Catalytically Generated Vanadium Enolates Formed via Interruption of the Meyer-Schuster Rearrangement as Useful Reactive Intermediates.** *Accounts of chemical research*
Trost, B. M., Tracy, J. S.
2020
 - **Ruthenium-catalysed multicomponent synthesis of the 1,3-dienyl-6-oxy polyketide motif.** *Nature chemistry*
Trost, B. M., Cregg, J. J., Hohn, C., Bai, W., Zhang, G., Tracy, J. S.
2020
 - **Total synthesis of terpenes via palladium-catalysed cyclization strategy.** *Nature chemistry*
Trost, B. M., Min, C.
2020
 - **Ruthenium-Catalyzed Asymmetric Allylic Alkylation of Isatins.** *Organic letters*
Trost, B. M., Kalnmals, C. A., Ramakrishnan, D., Ryan, M. C., Smaha, R. W., Parkin, S.
2020
 - **A borane-mediated palladium-catalyzed reductive allylic alkylation of alpha,beta-unsaturated carbonyl compounds** *CHEMICAL SCIENCE*

- Trost, B. M., Zuo, Z., Schultz, J. E., Anugula, N., Carr, K. A.
2020; 11 (8): 2136–40
- **Palladium-Catalyzed Regio-, Enantio-, and Diastereoselective Asymmetric [3+2] Cycloaddition Reactions: Synthesis of Chiral Cyclopentyl Phosphonates** *ACS CATALYSIS*
Trost, B. M., Shinde, A. H., Wang, Y., Zuo, Z., Min, C.
2020; 10 (3): 1969–75
 - **Lipid droplets can promote drug accumulation and activation.** *Nature chemical biology*
Dubey, R., Stivala, C. E., Nguyen, H. Q., Goo, Y., Paul, A., Carette, J. E., Trost, B. M., Rohatgi, R.
2020
 - **A borane-mediated palladium-catalyzed reductive allylic alkylation of α,β -unsaturated carbonyl compounds.** *Chemical science*
Trost, B. M., Zuo, Z., Schultz, J. E., Anugula, N., Carr, K. A.
2020; 11 (8): 2136-2140
 - **Enantio- and Diastereoselective Double Mannich Reaction between Ketones and Imines Catalyzed by Zn-ProPhenol.** *Organic letters*
Trost, B. M., Gnanamani, E. n.
2020
 - **Direct Enantio- and Diastereoselective Zn-ProPhenol-Catalyzed Mannich Reactions of CF₃- and SCF₃-Substituted Ketones.** *Organic letters*
Trost, B. M., Hung, C. J., Mata, G. n., Liu, Y. n., Lu, Y. n., Gnanamani, E. n.
2020
 - **Ruthenium-Catalyzed Intermolecular Coupling of Vinylic 1,2-Bisboronates with Alkynes: Stereoselective Access to Boryl-Substituted Homoallylic Alcohols.** *Journal of the American Chemical Society*
Trost, B. M., Zhang, G. n.
2020
 - **Palladium-Catalyzed Enantioselective Cycloaddition of Carbonylogous 1,4-Dipoles: Efficient Access to Chiral Cyclohexanones.** *Journal of the American Chemical Society*
Trost, B. M., Jiao, Z. n.
2020
 - **Forging Odd-Membered Rings: Palladium-Catalyzed Asymmetric Cycloadditions of Trimethylenemethane.** *Accounts of chemical research*
Trost, B. M., Mata, G. n.
2020
 - **Transition-Metal-Catalyzed Cycloaddition Reactions to Access Seven-Membered Rings.** *Chemistry (Weinheim an der Bergstrasse, Germany)*
Trost, B. M., Zuo, Z. n., Schultz, J. E.
2020
 - **Total synthesis of bryostatin 3.** *Science (New York, N.Y.)*
Trost, B. M., Wang, Y. n., Buckl, A. K., Huang, Z. n., Nguyen, M. H., Kuzmina, O. n.
2020; 368 (6494): 1007–11
 - **Use of α -trifluoromethyl carbanions for palladium-catalysed asymmetric cycloadditions.** *Nature chemistry*
Trost, B. M., Wang, Y. n., Hung, C. J.
2020
 - **Asymmetric Electrophilic Amination and Hydrazination of Acyclic α -Branched Ketones for the Formation of α -Tertiary Amines and Hydrazines** *ACS CATALYSIS*
Trost, B. M., Tracy, J. S., Lin, E. Y.
2019; 9 (12): 11082–87
 - **Redox Economic Synthesis of Trisubstituted Piperidones via Ruthenium Catalyzed Atom-Economic Couplings of N-Protected 1,5-Aminoalcohols and Michael Acceptors** *ADVANCED SYNTHESIS & CATALYSIS*
Trost, B. M., Sarkar, D., Bera, N.
2019

- **Annulative Allylic Alkylation Reactions Between Dual Electrophiles and Dual Nucleophiles: Applications in Complex Molecule Synthesis.** *Chemistry (Weinheim an der Bergstrasse, Germany)*
Trost, B. M., Kalnmals, C. A.
2019
- **Highly Regio-, Diastereo-, and Enantioselective Synthesis of Tetrahydroazepines and Benzo[b]oxepines via Palladium-Catalyzed [4+3] Cycloaddition Reactions.** *Angewandte Chemie (International ed. in English)*
Trost, B. M., Zuo, Z.
2019
- **Desymmetrization of Phosphinic Acids via Pd-Catalyzed Asymmetric Allylic Alkylation: Rapid Access to P-Chiral Phosphinates.** *Journal of the American Chemical Society*
Trost, B. M., Spohr, S. M., Rolka, A. B., Kalnmals, C. A.
2019
- **Dinuclear Metal-ProPhenol Catalysts: Development and Synthetic Applications.** *Angewandte Chemie (International ed. in English)*
Trost, B. M., Hung, C. J., Mata, G.
2019
- **New Catalytic Asymmetric Formation of Oxygen Heterocycles Bearing Nucleoside Bases at the Anomeric Carbon.** *Journal of the American Chemical Society*
Trost, B. M., Xu, S., Sharif, E. U.
2019
- **Chemo-, Regio-, Diastereo-, and Enantioselective Palladium Allylic Alkylation of 1,3-Dioxaboroles as Synthetic Equivalents of alpha-Hydroxyketones.** *Journal of the American Chemical Society*
Trost, B. M., Schultz, J. E., Chang, T., Maduabum, M. R.
2019
- **Catalytic (3+2) Palladium-Aminoallyl Cycloaddition with Conjugated Dienes** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Trost, B. M., Huang, Z.
2019; 58 (19): 6396–99
- **Catalytic (3+2) Palladium-Aminoallyl Cycloaddition with Conjugated Dienes.** *Angewandte Chemie (International ed. in English)*
Trost, B. M., Huang, Z.
2019
- **Enantioselective Divergent Synthesis of C19-Oxo Eburnane Alkaloids via Palladium-Catalyzed Asymmetric Allylic Alkylation of an N-Alkyl-alpha,beta-unsaturated Lactam** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Trost, B. M., Bai, Y., Bai, W., Schultz, J. E.
2019; 141 (12): 4811–14
- **Synthesis of Chiral, Densely Substituted Pyrrolidones via Phosphine-Catalyzed Cycloisomerization** *ORGANIC LETTERS*
Trost, B. M., Gnanamani, E., Hung, C., Kalnmals, C. A.
2019; 21 (6): 1890–94
- **Enantioselective Divergent Synthesis of C19-Oxo Eburnane Alkaloids via Palladium-Catalyzed Asymmetric Allylic Alkylation of an N-Alkyl-alpha,beta-unsaturated Lactam.** *Journal of the American Chemical Society*
Trost, B. M., Bai, Y., Bai, W., Schultz, J. E.
2019
- **Palladium-Catalyzed Decarboxylative Asymmetric Allylic Alkylation of Dihydroquinolinones** *ORGANIC LETTERS*
Trost, B. M., Nagaraju, A., Wang, F., Zuo, Z., Xu, J., Hull, K. L.
2019; 21 (6): 1784–88
- **Palladium-Catalyzed Decarboxylative Asymmetric Allylic Alkylation of Dihydroquinolinones.** *Organic letters*
Trost, B. M., Nagaraju, A., Wang, F., Zuo, Z., Xu, J., Hull, K. L.
2019
- **Synthesis of Chiral, Densely Substituted Pyrrolidones via Phosphine-Catalyzed Cycloisomerization.** *Organic letters*
Trost, B. M., Gnanamani, E., Hung, C. J., Kalnmals, C. A.

2019

- **Vanadium-Catalyzed Coupling of Allenols with Electrophilic Halide Sources for the Formation of α -Halo- α' , β' -unsaturated Ketones** *ORGANIC LETTERS*
Trost, B. M., Tracy, J. S., Yusoontorn, T.
2019; 21 (4): 1207–11
- **Vanadium-Catalyzed Synthesis of Geometrically Defined Acyclic Tri- and Tetrasubstituted Olefins from Propargyl Alcohols** *ACS CATALYSIS*
Trost, B. M., Tracy, J. S.
2019; 9 (2): 1584–94
- **Tuning the Reactivity of Ketones through Unsaturation: Construction of Cyclic and Acyclic Quaternary Stereocenters via Zn-ProPhenol Catalyzed Mannich Reactions** *ACS CATALYSIS*
Trost, B. M., Hung, C., Gnanamani, E.
2019; 9 (2): 1549–57
- **Direct Enantio- and Diastereoselective Vinylogous Addition of Butenolides to Chromones Catalyzed by Zn-ProPhenol.** *Journal of the American Chemical Society*
Trost, B. M., Gnanamani, E., Kalnmals, C. A., Hung, C. J., Tracy, J. S.
2019; 141 (4): 1489-1493
- **Vanadium-Catalyzed Coupling of Allenols with Electrophilic Halide Sources for the Formation of α -Halo- α' , β' -unsaturated Ketones.** *Organic letters*
Trost, B. M., Tracy, J. S., Yusoontorn, T.
2019
- **Acyclic Branched α -Fluoroketones for the Direct Asymmetric Mannich Reaction; Access to β -Fluoro Amines Bearing Tetrasubstituted Fluorine Stereocenters.** *Angewandte Chemie (International ed. in English)*
Trost, B. M., Tracy, J. S., Yusoontorn, T. n., Hung, C. I.
2019
- **Direct Enantio- and Diastereoselective Vinylogous Addition of Butenolides to Chromones Catalyzed by Zn-ProPhenol** *Journal of the American Chemical Society*
Trost, B. M., Gnanamani, E., Kalnmals, C. A., Hung, C., Tracy, J. S.
2019
- **Elaborating Complex Heteroaryl Containing Cycles via Enantioselective Palladium-Catalyzed Cycloadditions.** *Angewandte Chemie (International ed. in English)*
Trost, B. M., Jiao, Z. n., Hung, C. J.
2019
- **Palladium-Catalyzed Asymmetric Allylic Alkylation Strategies for the Synthesis of Acyclic Tetrasubstituted Stereocenters** *SYNTHESIS-STUTTGART*
Trost, B. M., Schultz, J. E.
2019; 51 (1): 1–30
- **Development of a Chemo- and Enantioselective Pd-Catalyzed Decarboxylative Asymmetric Allylic Alkylation of α -Nitroesters.** *Angewandte Chemie (International ed. in English)*
Trost, B. M., Schultz, J. E., Bai, Y. n.
2019
- **Sulfones as Chemical Chameleons: Versatile Synthetic Equivalents of Small Molecule Synthons.** *Chemistry (Weinheim an der Bergstrasse, Germany)*
Trost, B. M., Kalnmals, C. A.
2019
- **Palladium-Catalyzed Asymmetric Allylic Fluoroalkylation/Trifluoromethylation.** *Journal of the American Chemical Society*
Trost, B. M., Gholami, H. n., Zell, D. n.
2019; 141 (29): 11446–51

- **Direct Enantio- and Diastereoselective Vinylogous Addition of Butenolides to Chromones Catalyzed by Zn-ProPhenol** *Journal of the American Chemical Society*
Trost, B. M., Gnanamani, E., Kalnmals, C. A., Hung, C., Tracy, J. S.
2019
- **Enantioselective Synthesis of des-Epoxy-Amphidinolide N** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Trost, B. M., Bai, W., Stivala, C. E., Hohn, C., Pooock, C., Heinrich, M., Xu, S., Rey, J.
2018; 140 (49): 17316–26
- **Highly Chemoselective Deprotection of the 2,2,2-Trichloroethoxycarbonyl (Troc) Protecting Group.** *Organic letters*
Trost, B. M., Kalnmals, C. A., Tracy, J. S., Bai, W.
2018
- **Propene as an Atom-Economical Linchpin for Concise Total Synthesis of Polyenes: Piericidin A.** *Journal of the American Chemical Society*
Trost, B. M., Gholami, H.
2018
- **Direct Catalytic Asymmetric Vinylogous Additions of alpha,beta- and beta,gamma-Butenolides to Polyfluorinated Alkynyl Ketimines** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Trost, B. M., Hung, C., Scharf, M. J.
2018; 57 (35): 11408–12
- **Enantio- and Diastereoselective Synthesis of Chiral Allenes by Palladium-Catalyzed Asymmetric [3+2] Cycloaddition Reactions.** *Angewandte Chemie (International ed. in English)*
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PRESENTATIONS

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