

Curriculum Vitae

MARC ZIMMER

Jean Tempel '65 Professor of Chemistry

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EDUCATION

- 1979-1983 B.Sc. (Hons, Chemistry major), University of Witwatersrand, Johannesburg, South Africa.
- 1983-1984 M.Sc. University of Witwatersrand, Johannesburg, South Africa. Thesis advisor: Professor Robert D. Hancock. Thesis title: A X-ray Crystallographic and Molecular Mechanical Study of Copper(II) Macrocycles.
- 1986-1988 Ph.D. Worcester Polytechnic Institute, Worcester, MA. Thesis advisor: Nicholas K. Kildahl. Thesis title: Axial Ligation as a Function of Redox Level in Two Related Macrocyclic Ligand Complexes of Cobalt and Head to Tail Polymerization of 2,4,6-Trimethylphenol, Catalyzed by a μ_3 -oxo Ruthenium Cluster.
- 1989-1990 Postdoctoral Fellow, with Professor Robert H. Crabtree, Yale University, New Haven, CT. Theoretical and Synthetic Studies of Nickel Enzymes.

PROFESSIONAL EXPERIENCE

- 2014 – present Dean of Studies, Connecticut College
- 2000 – present Professor, Chemistry Department, Connecticut College
- 2011 – present Jean Tempel '65 Professor of Physical Science
- 2007 – 2014 Director of Fellowships and Scholarships, Connecticut College
- 2013 – 2014 Interim Director Center of International Studies and Liberal Arts, Connecticut College
- 2012 Professor, Semester at Sea, Spring '12, Summer '13 voyage
- 2005 – 2010 Barbara Zaccheo Kohn '72 Professor of Chemistry, Connecticut College
- 2006 – 2009 Department Chair, Chemistry Department
- 2000 – 2004 Christian Johnson Distinguished Teaching Professor, Connecticut College
- 2002 – 2003 Visiting Professor at the University of Cape Town, South Africa
- 1999 – 2000 Academic Dean, Natural Sciences, Connecticut College.
- 1998-1999 Sabbatical at the University of Heidelberg, DAAD Fellowship.
- 1997-1998 Interim Associate Dean of the College, Connecticut College.
- 1996 – 2000 Associate Professor, Chemistry Department, Connecticut College.
- 1990 – 1996 Assistant Professor, Chemistry Department, Connecticut College
- 1995 Director of the Connecticut College Study Away Teach Away Program at the University of Cape Town.
- 1994 Sabbatical at the University of Heidelberg, Humboldt Fellowship.
- 1984-1985 Science/Mathematics Teacher, Kuo Ting High School, Johannesburg, South Africa.

BOARDS, AWARDS ETC.

2014	Stroud Science Symposium Speaker, Kingswood Oxford School, Hartford, February 21, 2014
2013	ACS Western Connecticut Visiting Scientist Award for 2013
2012	The Princeton Review's 'Best 300 Professors'
2012	Huffington Post College one of "13 of the best college professors in the country"
2011	Ruth and William Silen, M.D. Award, Honorable Mention, Harvard Medical School for "Water Diffusion In And Out Of The β -Barrel Of Fast Maturing Fluorescent Proteins." Poster presented by Binsen Li, Ramza Shahid, Paola Peshkepija
2008-2011	Chemistry and Biochemistry, Advisory Board, WPI
2008-Present	Integrated Graduate Program in Physical and Engineering Biology, Advisory Board, Yale University
2007	Carnegie Foundation and Council for Advancement and Support of Education, Connecticut Professor of the Year
2005-2009	Barbara Zaccheo Kohn '72 Professor of Chemistry
2005	Nancy Batson Nisbet Rash Faculty Research Award for excellence in academic research
2005	John S. Burlew Connecticut Valley Section Award to recognize outstanding contributions to chemistry
2005-present	Scientific Advisory Board, Lifeboat Foundation
1999-present	Senior Advisory Board, Connecticut Sea Grant College Program
2001-2004	Christian A. Johnson Distinguished Teaching Professor, Connecticut College
1999-2003	Program Chair, Inorganic Division, American Chemical Society
2001	John King Excellence in Teaching Award
1999- 2003	Member Nominations and Symposia Committee, Inorganic Division, American Chemical Society
1997- 2001	Board of Directors, WCNI

EXTERNAL CONSULTING AND REVIEWING

Peer reviewed journal articles for Proceedings of the National Academy of Science, USA., Nature Chemical Biology, Nature Chemistry, Journal of the American Chemical Society, Biochemistry, Chemistry-A European Journal, BBA, Journal of Physical Chemistry, Structure, BMC Biotechnology, Tatlanta. Journal of Chemical Education, Journal of Molecular Structure, Inorganica Chimica Acta, Inorganic Chemistry, Dalton Transactions, Carbohydrate Research, Coordination Chemistry Reviews, Journal of Biomolecular Structure and Dynamics, FEBS Letters, Journal of Biological Inorganic Chemistry, Trends in Biotechnology, Journal of Biotechnology, Journal of Chemical Information and Modeling, Journal of Medicinal Chemistry, Photochemistry and Photobiology, Journal of Photochemistry and Photobiology B: Biology, European Journal of Inorganic Chemistry, New Journal of Chemistry, Expert Review of Proteomics, Protein Engineering - Design and Selection, Marine Biotechnology, Inorganic Chemistry Communications, Analytical Biochemistry, Modern Physics Letters B, Bioorganic & Medicinal Chemistry, Biophysical Journal, Chemical Physics Letters, Journal of Molecular Graphics and Modelling, Chemistry-An Asian Journal, ChemBioChem, Journal of Physical

Chemistry Letters, PLOS One, Journal of Computational Chemistry, ChemPhysChem, BBA – Proteins and Proteomics, Journal of Chemical Theory and Computation

1. NSF/EPA NSMDS Green Chemistry/Synthesis Panel, Panel P131880, May 13, 2013
2. Case Professor of the Year, Selection Committee, 2013
3. NSF's Research Infrastructure Improvement Initiative. GEAR: Cyberinfrastructure (CI) program, 2013
4. External Tenure Review Franklin & Marshall, 2013
5. Chemistry of Life Processes (CLP) Program in the Division of Chemistry at the National Science Foundation, October, 2011.
6. NIH MBRS Review, November 4, 2010
7. Consultant to the Swedish Academy of Sciences, May 2008.
8. Visiting Committee, Science Division, Hobart Williams & Smith Colleges, April 2004.
9. External Examiner Ph.D. thesis University of Sidney.
External Examiner M.Sc. thesis for the University of Cape Town.
External Examiner M.Sc. thesis Durban University.
10. Peer reviewed grant proposals for the National Science Foundation, Research Corporation, Foundation for Research Development (South Africa), National Research Foundation (South Africa), Jeffress Research Grants, and the Petroleum Research Fund proposals.
11. Consultant and team-teacher for the NSF Project to Increase Mastery of Math and Science at Windham High, Willamantic, CT.

BOOKS

1. "Glowing Genes: A Revolution in Biotechnology." Prometheus Books, Amherst, New York, 2005. (ISBN 1-59102-253-3).
" 光る遺伝子 オワンクラゲと緑色蛍光タンパク質GFP (単行本)." Maruzen Publishers, Tokyo, 2009. (ISBN 978-4621080948).
2. "Illuminating Disease." Oxford University Press, to be published Dec. 2014.
3. "Nature's Lights." Twenty First Century Books, to be published July 2015.

BOOK CHAPTERS

1. "Molecular Modeling of Inorganic and Bioinorganic Nickel(II) complexes." C. Csiki*, K.M. Norenberg*, C. Shoemaker*, M. Zimmer in "Molecular Modeling and Dynamics in Bioinorganic Systems" L. Banci, P. Comba, Eds. Kluwer Press, Dordrecht, Netherlands, 1997
2. "Inorganic Molecular Modeling and Cluster Analysis." M. Zimmer *Recent Research Developments in Inorganic Chemistry* 1998.
3. "Non-Retinal Chromophoric Proteins." M. Zimmer in "Cis-Trans Isomerization: from Biology to Supramolecular Chemistry." C. Dugave, Ed. Wiley VCH, Weinheim, Germany, 2006.
4. "Introduction to Fluorescent Proteins." M. Zimmer in "The Fluorescent Protein Revolution", R. Day & M. Davidson Eds. Taylor & Francis Books, 2014.
5. "What does it take to improve existing Fluorescent Proteins for *in vivo* imaging applications?" M. Zimmer in "*In Vivo* Imaging : Methods and Protocols" R.M. Hoffman, Ed. Humana Press, New York City, US, 2012.

RESEARCH PUBLICATIONS

(Asterisk indicates Connecticut College student co-author, and **bold** indicates main author.)
h-index of 19; Cited 1705 times; average citation per article 26.2

1. "Axial Ligation as a Function of Redox Level in Two Related Macrocyclic Ligand Complexes of Cobalt." **N.K. Kildahl** and M. Zimmer, *J. Coord. Chem.* 1988, 19, 71.
2. "Bending of the Reduced Porphyrin of Factor F430 can Accommodate a Trigonal-bipyramidal Geometry at Nickel. A Conformational Analysis of this Nickel Containing Tetrapyrrole, in Relation to Archaeobacterial Methanogenesis." **M. Zimmer** and **R. H. Crabtree**, *J. Am. Chem. Soc.* 1990, 112, 1062.
3. "Functional Modeling of [Ni,Fe] Hydrogenase: A Nickel Complex in an N,O,S Environment." M. Zimmer, G. Schulte, X.-L. Luo, and **R. H. Crabtree**, *Angew. Chem. Int. Ed. Eng.* 1991, 30, 193.
4. "The Mechanism of Metal incorporation into the Cavity of Macrocyclic Ligands, a Molecular Mechanical Analysis." C. Canales* and **M. Zimmer**, *J. Mol. Structure*, 1991, 245, 341.
5. "Molecular Modeling as an Inorganic Chemistry Exercise." C. Canales*; L. Egan* and **M. Zimmer** *J. Chem. Ed.*, 1992, 69, 21.
6. "A modified MM2 Force Field for Bleomycin Analysis." R. Charles*; M. Ganly-Cunningham*; R. Warren* and **M. Zimmer** *J. Mol. Struct.*, 1992, 265, 385.
7. "Pro-Search: Easy Online Information Retrieval for DIALOG." V. Fontneau; **M. Zimmer** *J. Chem. Inf. Comput. Sci.* 1992, 32, 176.
8. "Empirical Force Field Analysis of the Revised Structure of Coenzyme F430. Epimerization and Geometry of the Corphinoid Tetrapyrrole." **M. Zimmer**, *J. Biomol. Struct. & Dynam.* 1993, 11, 203.
9. "Binding Geometry of Cobalt-Bleomycin, An Empirical Force Field Analysis." J. L. Tueting*, K.L. Spence*, **M. Zimmer** *J. Chem. Soc., Dalton Trans.* 1994, 551.
10. "MacroModel, A Molecular Mechanics program." **M. Zimmer** *Journal of Undergraduate Research*, March, 1994.
11. "A Modified MM2 Force Field for High-valent di- μ -oxo Manganese Dimers." R. Manchanda, **M. Zimmer**, G.W. Brudvig, R.H. Crabtree *J. Mol. Struct.* 1994, 323, 257.
12. "Molecular Mechanics and the Jahn-Teller Effect" **P. Comba**, M. Zimmer *Inorg. Chem.* 1994, 33, 5368.
13. "Environmental Chemistry as a Theme Through-out Freshman Chemistry.", **M. Zimmer** *J. Chem. Ed.* 1994, 71, 926.
14. "Bioinorganic Molecular Mechanics." **M. Zimmer**, *Chem. Rev.* 1995, 95, 2631.
15. "Inorganic Molecular Mechanics." P. Comba, **M. Zimmer**, *J. Chem. Ed.* 1996, 73, 108.
16. "Conformational Analysis of Cobalt(III) Six-Membered Diamine Rings by Cluster Analysis." M. F. DaCruz*, **M. Zimmer**, *Inorg. Chem.* 1996, 35, 2872.
17. "Copper(II) Six-Membered rings: A Molecular Mechanics and Cluster Analysis." M. F. DaCruz*, **M. Zimmer**, *Inorg. Chim. Acta* 1997, 261, 181.
18. "Molecular Mechanics and Cluster Analysis of Nickel(II) Six-Membered Rings." K.M. Norenberg*, C.M. Shoemaker* and **M. Zimmer** *J. Chem. Soc., Dalton Trans.* 1997, 1997, 1521.
19. "A Molecular Mechanics and Database Analysis of the Structural Preorganization and Activation of the Chromophore-Forming Hexapeptide Fragment in Green Fluorescent Protein." B.R. Branchini, J.O. Lusins*, **M. Zimmer** *J. Biomol. Struct. & Dynam.* 1997, 14, 441.

20. "Computational Design of Biomimetic Compounds: Urease an example." C. Csiki*, **M. Zimmer** *J. Mol. Struct.* 1998, 442, 11.
21. "Conformational Analysis of Cobalt(III), Copper(II) and Nickel(II) Six-membered Ring Systems." M. F. DaCruz*; **M. Zimmer** *Inorg. Chem.* 1998, 37, 366.
22. "Chromophore Formation in Green Fluorescent Protein." B. Branchini, A. Nemser*, **M. Zimmer**, *J. Am. Chem. Soc.* 1998, 120, 1.
23. "Site-Directed Mutagenesis of Histidine 245 in Firefly Luciferase: A proposed Model for the Active Site." **B. Branchini**, R. Magyar, M. Murtiashaw, S. Anderson*, M. Zimmer, *Biochemistry* 1998, 37, 15311.
24. "Molecular Mechanical and Cluster Analysis of Fourteen-Membered Cobalt(III) Macrocyclic Complexes." C. Cooper*, **M. Zimmer**. *Structural Chem.* 1999, 10, 17.
25. "Conformational Analysis of Copper(II) 1,4,8,11,-tetraazacyclotetradecane Macrocyclic Systems." M. Bakaj*, **M. Zimmer** *J. Mol. Struct.* 1999, 59, 508.
26. "Structural Analysis of All the nickel Fourteen-Membered Tetraaza Macrocycles in the Cambridge Structural Database." M. A. Donnelly*, **M. Zimmer** *Inorg. Chem.* 1999, 38, 1650.
27. "Conformational Searching of Transition Metal Compounds." Jessica Bartol*, **Peter Comba***, Michael Melter, **Marc Zimmer*** *J. Comp. Chem.* 1999, 20, 1549.
28. "Site-Directed Mutagenesis of Firefly Luciferase Active Site Amino Acids: A Proposed Model for Bioluminescence Color." **B. Branchini**, R. Magyar, M. Murtiashaw, S. Anderson*, L. C. Helgerson, M. Zimmer, *Biochemistry* 1999, 38, 13223.
29. "A Molecular Mechanical Analysis of the Active Site of Urease with a Special Emphasis on Determining the Binding Conformations Available to Oxygen-bound Urea." C. Csiki* **M. Zimmer**, *J. Biomol. Struct. & Dynam.* 1999, 17, 121.
30. "Molecular Mechanics Evaluation of the Proposed Mechanisms for the Degradation of Urea by Urease." **M. Zimmer** *J. Biomol. Struct. & Dynam.* 2000, 17, 787.
31. "Computational Analysis of the First Biheterocyclization Site of the Antibiotic Microcin B17." M. A. Donnelly*, **M. Zimmer** *J. Biomol. Struct. & Dynam.* 2000, 17, 779.
32. "First Example of a double stranded helicate with square-planar coordination for the metal." M. Zimmer, D.A. Tocher, G.K. Patra, J.P. Naskar, **D. Datta**, *Indian J. Chem.* 1999, 38A, 1087.
33. "Molecular Mechanics, Data and Conformational Analysis of First-Row Transition Metal Complexes in the Cambridge Structural Database." **M. Zimmer** *Coord. Chem. Rev.* 2001, 212, 133.
34. "Computational Analysis of Thr203 in Green Fluorescent Protein." A. Warren*, **M. Zimmer**, *J. Mol. Graphics & Modelling* 2001, 19, 297.
35. "A Theoretical Study of the Mechanism of Peptide Ring Formation in Green Fluorescent Protein." **P.E.M. Siegbahn**, M. Wirstam, M. Zimmer, *International Journal of Quantum Chemistry* 2001, 81, 169.
36. "Conformational/Configurational Analysis of All the Binding Geometries of Cobalt(III) Bleomycin." F. Fedeles*, **M. Zimmer** *Inorg. Chem.* 2001, 40, 1557.
37. "Conformational Analysis of the Non-Planar Deformations of Cobalt Porphyrin Complexes in the Cambridge Structural Database." D. L. Cullen, L. V. Desai*, **M. Zimmer**, J. A. Shelnutt *Struct. Chem.* 2001, 12, 237.
38. "Computational Analysis of the Autocatalytic Posttranslational Cyclization Observed in Histidine Ammonia-Lyase. A Comparison with Green Fluorescent Protein." M. Donnelly*, F. Fedeles*, M. Wirstam, **P. E. M. Siegbahn**, **M. Zimmer** *J. Am. Chem. Soc.* 2001, 123, 4679.

39. "Photoisomerization of Green Fluorescent Protein and the Dimensions of the Chromophore Cavity." M. C. Chen*, C. R. Lambert, J. D. Ugritis*, **M. Zimmer** *Chem. Phys.* 2001, 270, 157.
40. "Green Fluorescent Protein (GFP): Applications, Structure and Related Photophysical Behavior." **M. Zimmer** *Chem. Rev.* 2002, 102, 759.
41. "Using the Cambridge Structural Database to Introduce Important Inorganic Concepts" T. V. Davis*, M. S. Zaveer*, **M. Zimmer** *J. Chem. Ed.* 2002, 79, 1278.
42. "The Moderating Influence Of Proteins On Non-Planar Tetrapyrrole Deformations. Coenzyme F430 In Methyl Coenzyme-M Reductase." L.N. Todd*, **M. Zimmer** *Inorg. Chem.* 2002, 41, 6831
43. "The New Industrialized Approach to Biology: Review of: *Modules in Emerging Fields. Volume 4: Genomics and Proteomics*, by Lucienne Ronco, Martha Grossel, Marc Zimmer, and Thomas Socash; CD-ROM." A. Attie *Cell Biology Education* 2003, 2, 150.
44. "Structural Analysis of the Immature Form of the GFP Analog DsRed." M.S. Zaveer*, **M. Zimmer** *Bioorganic & Medicinal Chemistry Letters* 2003, 13, 3919.
45. "Substrate Selectivity and Conformational Space Available to Bromoxynil and Acrylonitrile in Iron Nitrile Hydratase." L.V. Desai*, **M. Zimmer** *Dalton Transactions* 2004, 872-877.
46. "Structural Analysis of the Conformational Flexibility of Tris(pyrazolyl)borate Ligands and Their Analogues." H. DeBari*, **M. Zimmer** *Inorganic Chemistry* 2004, 43, 3344-3348.
48. "Hula-Twisting in Green Fluorescent Protein." N.-Y. Baffour*, **M. Zimmer**, *Chemical Physics* 2004, 303, 7-11.
49. "Mutagenesis Evidence that the Partial Reactions of Firefly Bioluminescence Are Catalyzed by Different Conformations of the Luciferase C-Terminal Domain." **B.R. Branchini**, T.L. Southworth, M.H. Murtiashaw, S.R. Wilkinson*, N.F. Khattak*, J.C. Rosenberg*, and M. Zimmer, *Biochemistry* 2005, 44, 1385-1393.
50. "Structural features responsible for GFPuv and S147P-GFP's improved fluorescence." N.-Y. Baffour-Awuah*, F. Fedeles*, **M. Zimmer** *Chemical Physics* 2005, 310, 25-31.
51. "The Role of the Protein Matrix in GFP Fluorescence." S.L. Maddalo*, **M. Zimmer**, *Photochemistry and Photobiology*, 2006, 82, 367-372.
52. "Effect of the Methyl-Coenzyme-M Reductase Protein Matrix on the Hole-Size and Nonplanar Deformations of Coenzyme F430." C. Mbofana*, **M. Zimmer** *Inorg. Chem.* 2006, 45, 2598-2602.
53. "Green Fluorescent Proteins" **M. Zimmer** *Quarterly Review of Biology* 2006, 81, 165.
54. "Synergistic Mutations Produce Blue-Shifted Bioluminescence in Firefly Luciferase" **B. Branchini**, D. Ablamsky, J. Rosenman*, L. Uzasci*, T. Southworth, M. Zimmer *Biochemistry* 2007, 46, 13847-13855.
55. "The Role of the Tight-Turn, Broken Hydrogen Bonding, Glu222 and Arg96 in the Post-translational Green Fluorescent Protein Chromophore Formation." N. P. Lemay*, A.L. Morgan*, E.J. Archer*, L.A. Dickson*, C.M. Megley* **M. Zimmer** *Chemical Physics* 2008, 348, 152-160.
56. "Photophysics and Dihedral Freedom of the Chromophore in Yellow, Blue, and Green Fluorescent Protein." C. M. Megley*, L. A. Dickson*, S. L. Maddalo*, G. J. Chandler **M. Zimmer** *J. Phys. Chem. B* 2009, 113, 302-308.
57. "Are classical molecular mechanics calculations still useful in bioinorganic simulations?" **M. Zimmer** *Coordination Chemistry Reviews* 2009, 253, 817-826.
58. "GFP: From Jellyfish to the Nobel Prize and Beyond." **M. Zimmer** *Chemical Society Reviews* 2009, 38, 2823-2832.
59. "Lighting up Biology" **M. Zimmer** *Chemical Biology*, 2009, 4, B79.
60. "On the origin of fluorescence in bacteriophytochrome infrared fluorescent proteins."

- A. A. Samma*, C. K. Johnson*, S. Song*, S. Alvarez*, **M. Zimmer** *J. Phys. Chem. B* 2010, **114**, 15362-15369.
61. "Function and Structure of GFP-like proteins in the Protein Data Bank." W. J.-H. Ong, S. Alvarez*, I. E. Leroux*, R. S. Shahid*, A. A. Samma*, P. Peshkepija*, A. L. Morgan*, S. Mulcahy*, **M. Zimmer** *Molecular Biosystems* 2011, **7**, 984-992.
 62. "Water diffusion in and out of the β -barrel of GFP and the fast maturing fluorescent protein, TurboGFP." B. Li*, R. Shahid*, P. Peshkepija*, **M. Zimmer** *Chemical Physics* 2012, **392**, 143-148.
 63. "Structural consequences of chromophore formation and exploration of conserved lid residues amongst naturally occurring fluorescent proteins." Zimmer, M. H., Li, B., Shahid, R., Peshkepija, P., and Zimmer, M. *Chemical Physics* 2014, **429**, 5-11.
 64. "CDK6 binds and promotes the degradation of the EYA2 protein." Kohrt, D., Crary, J., Zimmer, M., Patrick, A. N., Ford, H. L., Hinds, P. W., and Grossel, M. J. *Cell Cycle* 2014, **13**, 62-71.

POPULAR PRESS

1. "How to find students' inner geek." **M. Zimmer**, *The Chronicle of Higher Education* 2005, August 12, B5.
2. "Life in the Circus" **M. Zimmer** *Inside Higher Ed, Views*, 2006, July 7.
3. "Guerrilla Puzzling: a Model for Research." **M. Zimmer** *The Chronicle of Higher Education* 2007, February 16, B5.
4. "Are American Scientists an Endangered Species?" **M. Zimmer** *Inside Higher Ed, Views*, 2007, July 2.
5. "College Shoppers: Check Out The Fit" **M. Zimmer and E.V. Gallagher** *Hartford Courant*, July 2, 2007.
6. "Is it Science or is it art?" **M. Zimmer** *The Day*, November 18, 2007.
7. "Time to talk about cloning humans." **M. Zimmer** *Providence Journal*, January 11, 2008.
8. "SciFest Africa" *Chemistry & Engineering News*, May 19, 2008, pages 46-47.
9. "The little protein that glowed." **M. Zimmer** *Los Angeles Times*, October 9, 2008. Also published in *The Miami Herald, The Hartford Courant, The Peninsula Qatar, South Coast Today, Allentown Morning Call, South Bend Tribune, Ridgway Record* and *Juneau Empire*.
10. "Driver of van just missed the Nobel for green protein." **M. Zimmer** *Providence Journal*, October 22, 2008.
11. "In the glow of Alfred Nobel." **M. Zimmer** *Connecticut College Magazine* Spring 2009.
12. "Green Light" *NIH Findings* September 2009.
13. "A Colorful Answer To Pregnancy Puzzle. A Eureka Moment For Chemists: Answer Found In Fruit Fly Poop." **M. Zimmer** *Hartford Courant*, February 6, 2011.
14. "Optogenetics: Three not-so-blind (anymore) mice" **M. Zimmer** *Providence Journal*, May 7, 2011.
15. Interviewed and quoted in "How Illuminating" *The Economist*, March 10, 2011. and in "Hunting Elusive Green Fluorescent Proteins" *Chemistry World*, May 26, 2011.
16. "Lighting Up Chickens to Prevent Bird Flu Pandemics" *Huffington Post*, November 28, 2012.
17. "Dengue Fever vs. Glowing Mosquitoes" *USA Today*, February 22, 2013.
18. "Luminescent Eel Muscles Fluorescent Protein Revolution into Clinic." *Huffington Post*, June 18, 2013.

19. "Mending Broken Hearts: Using Embryonic Stem Cells to Repair the Damage Caused by Heart Attacks." *Huffington Post*, May 9, 2014.

CONFERENCE PROCEEDINGS

1. "A Conformational Analysis of the Nickel Containing Tetrapyrrole, Factor F430, in Relation to Archaeobacterial Methanogenesis," R. H. Crabtree and M. Zimmer, *J. Inorg. Biochem.* 1989, 36, 196.
2. "Empirical Force Field Analysis of Cobalt Binding Modes in Bleomycin." K. Spence*; M. Zimmer, *Proc. Nat. Council Undergrad. Res.* 1992, 6, 1694.
3. "Study of Oxomanganese Dimers as Models for the Oxygen Evolving Center in Photosystem II" (ICBIC VI abstract) R. Manchanda, M. Zimmer, G.W. Brudvig, R.H. Crabtree *J. Inorg. Biochem.* 1993, 51, 453.
4. "Molecular Mechanics and the Jahn-Teller Effect" P. Comba, M. Zimmer, Proceedings of the First European Conference on Computation Chemistry, *American Institute of Physics.* 1995.
5. "GFP chromophore formation. Structural and activation aspects." B.R. Branchini, J. Lusins* and M. Zimmer *Proceedings of the 9th International Symposium on Bioluminescence and Chemiluminescence.* Hastings, J.W.; Kricka, L.J.; Stanley, P.E. Eds., John Wiley & Sons, Chichester N.Y., 1996, 407.
6. "Mutational Studies of an Active Site Peptide in Firefly Luciferase" B.R. Branchini, R. A. Magyar, M. H. Murtiashaw, J.W. Grice* and M. Zimmer *Proceedings of the 10th International Conference on Bioluminescence and Fluorescence* Hastings, J.W.; Kricka, L.J.; Stanley, P.E. Eds., John Wiley & Sons, N.Y., 1998, 381.
7. "A Molecular Mechanical Analysis of the Active Site of Urease with a Special Emphasis on Determining the Binding Conformations Available to Oxygen-bound Urea." C. Csiki* M. Zimmer *J. Inorg. Biochem.* 1999, 74, 351.
8. "Mutational Studies of Stringently Conserved Firefly Luciferase Active Site Residues." B.R. Branchini, R.A. Magyar, M.H. Murtiashaw, N.C. Portier, M. Zimmer in *Bioluminescence and Fluorescence 2000*, edited by J.F. Case, P.J. Herring, B.H. Robison, S.H.D. Haddock, L.J. Kricka and P.E. Stanley, World Scientific, Singapore, 2000, 145.
9. "Comparative Analysis of Autocatalytic Posttranslational Modifications" M. Zimmer, P.E.M. Siegbahn, *European J. Biochem.* 2001, 268 supplement 1, 166.
10. "Photophysics and Chromophore Cavity Analysis of Green Fluorescent Protein" N.Y. Baffour-Awuah, S. Maddalo, M. Zimmer, *FEBS Journal*, 2005, 272, s1, 22.
11. "Conformational freedom of the chromophore in fluorescent proteins." K.A. Franczyk, N.P. Lemay, S.L. Maddalo, C. Mbofana, M. Zimmer, G.L. Chandler *Proc. SPIE* 2007, 6449, 64490Q 1-10.
12. "Chromophore formation in GFP: computational modeling of the immature form of wild-type GFP." Nathan P. Lemay and Marc Zimmer *Proc. SPIE* 2007, 6449, 644916-644923.

EDUCATIONAL MATERIALS

Modules in Emerging Fields (Educational CD-ROMs)

- Volume 1: Combinatorial Chemistry, Academic Host – Timo Ovaska, Visiting Expert – Stephen Wilson, Director – Marc Zimmer
- Volume 2: Nanotechnology, Academic Host – Arlan Mantz, Visiting Expert – Donald Cox, Director – Marc Zimmer
- Volume 3: Indigenous Cultures of Spanish America, Academic Host – Frank Graziano, Visiting Expert – Luis Millones, Director – Marc Zimmer
- Volume 4: Genomics and Proteomics, Academic Host – Martha Grossel, Visiting Expert – Lucienne Ronco, Director – Marc Zimmer
- Volume 5: Assessing the Stress Hormone Cortisol, Academic Host – Ruth Grahn, Visiting Expert – Brian Kalman, Director – Marc Zimmer
- Volume 6: Bioanalytical Applications of Bioluminescence, Academic Host – Bruce Branchini, Visiting Expert – Aldo Roda, Director – Marc Zimmer
- Volume 6a: Green Fluorescent Protein, Academic Host and Director – Marc Zimmer
- Volume 7: Data Mining, Academic Host – Gary Parker, Visiting Expert – Gregory Piatetsky, Director – Marc Zimmer
- Volume 8: Aging, Health and Wellness in Late Adulthood, Academic Host – Michelle Dunlap, Visiting Expert – Dr. Sue Levkoff, Dr. Leslie Curry, Dr. Hongtu Chen, Director – Marc Zimmer

FUNDING FOR RESEARCH AND EDUCATION

1. Pfizer Undergraduate Fellowship for Carmen Canales '91, "Copper Macrocyclic Interactions", 1990, \$4,000
2. Pfizer Undergraduate Fellowship for Marguerite White '93, "Tungsten AOR Model Systems", 1992, \$5,000
3. Petroleum Research Fund - type GB, "Model Systems for Aldehyde Ferredoxin Oxidoreductase, a Tungsten Enzyme." \$18,000 for 2 years, June 1992.
4. Yankee Ingenuity Initiative, Apollo Kinsley Collaborative Grants, "Model Systems for Aldehyde Ferredoxin Oxidoreductase, a Tungsten Enzyme." \$43,425 for 1 year, July 1992.
5. National Science Foundation, ILI, "Implementation of Computational Chemistry throughout the Curriculum", 1992, \$56,670.
6. Alexander von Humboldt Fellowship, Sabbatical support for 8 month research at the University of Heidelberg, 1993.
7. Pfizer Art of Teaching Award "Environmental Chemistry as a Theme Through-out Freshman Chemistry", 1994, \$32,000.
8. Camille and Henry Dreyfus Foundation "Environmental Chemistry as a Theme Through-out Freshman Chemistry", 1994, \$13,500.
9. Petroleum Research Fund "Molecular Mechanical and Cluster Analysis of the Factors Responsible for the Conformations Adopted by Tetra-aza Macrocycles.", 1997-9, \$25,000.
10. DAAD Visting Scholar Fellowship, Sabbatical Support, 1998.

11. NIH-Area Award "Modeling Green Fluorescent Protein", 1999-2002, \$100,000.
12. Research Corporation "Modeling Posttranslational Cyclization in Green Fluorescent Protein and Microcin B17." 1999-2002, \$27,000.
13. Henry Dreyfus Teacher-Scholar, 2000-2003, \$60,000.
14. Undergraduate Biological Sciences Education Program, Howard Hughes Medical Institute, \$1,100,000, 2000 – 2004 (Author and Project Director).
15. Keck Foundation "Visiting Scholars Program", \$500,000, 2000-2003 (Author and Project Director).
16. Petroleum Research Fund SE for Molecular Mechanics Symposium, 2000, \$2,500
17. Pfizer Undergraduate Fellowship for Ming Chen '01, "Anthozoan GFP analogs", 2000, \$5,000
18. NSF-MRI Award, "Acquisition of High Performance Computers for the Northeastern Undergraduate Research Chemistry Consortium", M. Zimmer, Co-PI, \$780,220, 2001.
19. Petroleum Research Fund "Computational Analysis of Two Environmentally Important Metalloenzymes: Methyl Coenzyme M Reductase and Nitrile Hydratase.", 2002- 2005, \$50,000.
20. Research Corporation "Computational Analysis of Green Fluorescent Protein and its Mutants", 2002-2004, \$35,435.
21. NIH-AREA "Modeling Green Fluorescent Protein and GFP-like Proteins", 2002 - 2005, \$144,160
22. Petroleum Research Fund SE for "Bioluminescence: Basic, Environmental and Applied Aspects, at the American Society for Photobiology Annual Meeting, July 2004, Seattle, WA," \$2,400.
23. Petroleum Research Fund SE for "The Future of Force Field Modeling of Metal Complexes in the DFT Age. A symposium for the International Chemical Congress of Pacific Basin Societies", PacifiChem 2005, Honolulu, Hawaii, December 15-20, 2005" \$3,500
24. NIH-AREA "Modeling Fluorescent and Tracer Proteins (GFP and Luciferase)", 2006-2009, \$149,000
25. Faculty Development Grant, Institute for the International Education of Students, 2007, \$3,000.
26. State Street Foundation for "Bridge to Science", 2007-2008, \$25,000.
27. NSF-s-STEM "Bachelor of Arts – Research Intensive", 2008-2012, \$513,900.
28. Maximilian E. and Marion O. Hoffman Foundation, Hoffman Scholars Fund, 2008-2012, \$50,000.
29. "Methyl Coenzyme-M Reductase" 200,000 CPU hours on National Institute for Computational Sciences Cray XT5 awarded November 2010.
30. "Molecular recognition catalysis for selective functionalization of C-H bonds" Dr. U. Hintermair, Feodor Lynen Programme, Humboldt Foundation, Sponsor: M. Zimmer Host: R. Crabtree Yale, awarded April 2011.
31. NIH-AREA "Understanding and Designing New Fluorescent Proteins." 2009 – 2012, \$209,000.
32. Balfour Foundation "Science Leader Scholarships", 2011-2013, \$100,000.
33. Petit Family Foundation, "Research Scholarships for Science Leaders", 2011-2012, \$15,000.
34. NSF-S-STEM "Science Leaders Program", 2012 – 2016, \$436,307.
35. The Maximilian E. and Marion O. Hoffman Foundation, Inc. "Science Leaders Program", 2012-2014, \$50,000.
36. NSF-MRI "Acquisition of High Performance Computers for the Molecular Education and Research Consortium in Undergraduate computational Chemistry." George Shields, PI, Marc Zimmer Co-PI, 2012-2015 \$200,000.

37. Sherman Fairchild Foundation “Summer Stipends Program in the Sciences” wrote grant and Co-PI 2014-2017 \$247,500.

PRESENTATIONS

1. “Axial Ligation as a Function of Redox Level in Two Related Macrocyclic Ligand Complexes of Cobalt,” N. K. Kildahl and M. Zimmer, presented at the 17th Northeastern Regional Meeting of the American Chemical Society, Rochester, New York, 1987.
2. “Head to Tail Polymerization of 2,4,6-Trimethylphenol, Catalyzed by a u_3 – oxo - Ruthenium Cluster,” N. K. Kildahl and M. Zimmer, presented at the 18th Northeastern Regional Meeting of the American Chemical Society, Orono, Maine, 1988.
3. “Mechanistic consequences of bending in Factor F430”, R. H. Crabtree and M. Zimmer, presented at the Fourth International Conference in Bioinorganic Chemistry, Boston, 1989.
4. “A Conformational Analysis of the Nickel Containing Tetrapyrrole in Methyl Coenzyme M Reductase, in Relation to Archaeobacterial Methanogenesis,” M. Zimmer and R. H. Crabtree, presented at the meeting of the American Chemical Society in Miami, September 1989.
5. “Bioinorganic Empirical Force-Field Calculations” M. Zimmer, Wesleyan University, November, 1991.
6. “Empirical Force Field Analysis of the Revised Structure of Coenzyme F430. Epimerization and Geometry of the Corphinoid Tetrapyrrole.” M. Zimmer, Bioinorganic 3J Seminar Series, Yale University, 16 June, 1992.
7. “Empirical Force Field Analysis of the Revised Structure of Coenzyme F430. Epimerization and Geometry of the Corphinoid Tetrapyrrole.” M. Zimmer, 22nd Northeastern Regional Meeting of the American Chemical Society, June 1992.
8. “Molecular Modeling as an Inorganic Chemistry Exercise” M. Zimmer invited speaker at the Symposium on Static and Dynamic Aspects of Molecular Modeling, 22nd Northeastern Regional Meeting of the American Chemical Society, June 1992.
9. “Empirical Force Field Analysis of Cobalt Bleomycin, An Anticancer Drug.” Mount Holyoke College, September 15, 1993.
10. “Molecular Mechanical Analysis of Cobalt-Bleomycin, an Anticancer Drug. Examples of Possible Uses and Abuses of Molecular Mechanical Calculations.” After Dinner talk at Western Connecticut American Chemical Society meeting October 19, 1993
11. “An Empirical Force Field Analysis of the Binding Geometry of Cobalt-Bleomycin, an Anticancer Drug” Worcester Polytechnic Institute, November 3, 1993.
12. “Empirical Force Field Analysis of the Reductive Dehalogenation of Shortchain Halogenated Hydrocarbons by Factor F430”, Heidelberg University, Germany, February, 1994.
13. “Bio-inorganic Molecular Mechanical Calculations: Bleomycin and Factor F430 as Representative Examples.”, St. Andrews University, St. Andrews, Scotland, April 18, 1994.
14. “Der Jahn-Teller Effect in Kupfer(II) Komplexe.”, Heidelberg University, Germany, July, 1994.
15. “Coordination Geometry of Cobalt Bleomycin, a Molecular Mechanical Approach.”, Queens College, New York, May, 1995.

16. "Cluster Analysis and Molecular Mechanical Analysis of six-membered cobalt(III) rings", Rhodes University, South Africa, August, 1995.
17. "Cluster Analysis and Molecular Mechanical Analysis of six-membered cobalt(III) rings", University of Cape Town, South Africa, November, 1995.
18. "Molecular Modeling of Inorganic and Bioinorganic Nickel(II) complexes" invited seminar NATO workshop, San Minato, Italy, March 1997.
19. "Molecular Mechanical and Database Analysis of the Chromophore Formation in Green Fluorescent Protein." ACS meeting San Francisco, April 1997.
20. "Incorporating Computational Chemistry Through-out the Chemistry Curriculum" Computers in Chemical Education Symposium, ACS meeting San Francisco, April 1997.
21. "Green Fluorescent Protein: Light in a Can" Northeast Regional Meeting of the American Chemical Society, Saratoga Springs, June 24, 1997.
22. "Incorporating Computational Chemistry Through-out the Chemistry Curriculum" invited seminar, ICCCRE, Pune, India, January 1998.
23. "Modeling the Active Site of Urease" Symposium on Practical Applications of Computational Organometallic Chemistry, ACS meeting Boston, August 1998.
24. "Modeling the Active Site of Urease", Wesleyan University, September 23, 1998.
25. "A Theoretical Study of the Mechanism of Peptide Ring Formation in Green Fluorescent Protein (GFP)" Heidelberg University, October 19, 1998.
26. "Modeling Urea Binding in Urease" University of Leiden, Leiden, Netherlands, November 23, 1998.
27. "Modeling the active site of urease: developing and utilizing inorganic conformational search methods to find the conformations available to urea in urease." Keynote speaker, Symposium on the Chemistry and Biochemistry of Urease, University of Bologna, December 10, 1998.
28. "Modeling the Active Site of Urease" Connecticut College, September 15, 1998. 30.
29. "Modeling the Active Site of Urease" University of Basel, January 25, 1999.
29. "A Molecular Mechanical Analysis of the Active Site of Urease with a Special Emphasis on Determining the Binding Conformations Available to Oxygen-bound Urea." Heidelberg University, February 10, 1999.
30. "A Molecular Mechanical Analysis of the Active Site of Urease with a Special Emphasis on Determining the Binding Conformations Available to Oxygen-bound Urea." University of Cape Town, March 17, 1999.
31. "Molecular Mechanics, Data and Conformational Analysis of First-Row Transition Metal Complexes in the Cambridge Structural Database." ACS meeting, Inorganic Molecular Mechanics Symposium, San Francisco, March 2000.
32. "Configurational/Conformational Searches using Inorganic Molecular Mechanics Methods." Recent Developments in Force Fields Symposium, ACS Meeting, Washington, August 2000.
33. "Jellyfish Green Fluorescent Protein: Light in a Can." Worcester Polytechnic Institute December 20, 2000.
34. "Maximizing Undergraduate Research: Jellyfish, Anticancer Drugs and Cow Flatulence", University of North Carolina, Asheville, March 12, 2001.
35. "Computational Analysis of the Autocatalytic Posttranslational Cyclization Observed in Histidine Ammonia-Lyase. A Comparison with Green Fluorescent Protein." 27th Meeting of the Federation of European Biochemical Societies in Lisbon, Portugal, February, 2001.

36. "Computational Analysis of Green Fluorescent Protein." SUNY Stonybrook, November 29, 2001.
37. "Photophysical and Structural Properties of Green Fluorescent Protein." Presented Trinity College, February 8, 2002.
38. "Photophysical and Structural Properties of Green Fluorescent Protein." University of Rhode Island, March 1, 2002.
39. "Extracurricular Science Education" Council for University Science Education, University of Cape Town, October 2, 2002.
40. "Photophysical and Structural Properties of Green Fluorescent Protein" University of Natal, Durban, October 4, 2002.
41. "Nitrile hydratase: An example of an industrially used environmentally benign catalyst." United Nations Industrial Development Organisation Workshop on Cleaner Technologies for Sustainable Chemistry, Cape Town, South Africa, 9 December, 2002
42. "Photophysical and Structural Properties of Green Fluorescent Protein." University of Witwatersrand, South Africa, February 2003
43. "In Silico Analysis of Non-planar Deformations of F430 in Methyl Coenzyme-M Reductase" Santa Maria Workshop on Bioinorganic Chemistry, Havana, Cuba, July 10, 2003
44. "Using Jellyfish to See a Whole New World." Heidelberg University, September 19, 2003.
45. "Glowing Genes", Science EpiCenter and DNA Learning Center, April 13, 2004.
46. "Some Camels are Better Mothers Than Others" Baccalaureate Address, Connecticut College, May 22, 2004.
47. "Structural Analysis of GFP and GFP Analogs." 32nd Annual Meeting of the American Society for Photobiology, Seattle, June 13, 2004.
48. "Glowing Genes: Using Jellyfish and Firefly Proteins to See a New World" W.P.I., April 28, 2005.
49. "GFP: The Green Revolution" United States Coast Guard Academy, Science Lecture Series, September 8, 2005.
50. "GFP: The Green Revolution" Rhode Island College, Providence, September 23, 2005.
51. "Photophysics of GFP and GFP-like proteins." Bryn-Mawr/Haverford, November 10, 2005.
52. "The Princess and the Pearl: A Tale about the MM analysis of the Metal Environment in Macrocyclic Complexes, Urease, Methyl-Coenzyme-M Reductase and Nitrile Hydratase." Pacificchem, Hawaii, December 15, 2005.
53. "Computational Analysis of the Effect the Methyl-Coenzyme-M Reductase Protein Matrix and Nickel Coordination Number Have on the Non-planar Deformations of Coenzyme F430." Pacificchem, Hawaii, December 20, 2005.
54. "Glowing Genes" New London Voices, September 9, 2006.
55. "Glow" Science Today lecture series, SUNY Oswego, September 13, 2006.
56. "Computational Analysis of Photophysical Properties and Chromophore Formation of GFP." Heidelberg University, October 13, 2006.
57. "Conformational Freedom of the Chromophore in Fluorescent Proteins." Photonics West 2007, San Jose, January 23, 2007.
58. "GFP: Using fluorescence to see a new world." Trinity College, February 9, 2007.
59. "Glow: The GFP Story." New Haven American Chemical Society Sectional meeting, April 10, 2007.
60. "GFP, a Molecular Microscope." University of Connecticut, April 11, 2007.
61. "Using Glowing Gonads to Combat Malaria." IES, Freiburg, June 12, 2007

62. "GFP: A Molecular Microscope." University of Ulm, Germany, June 14, 2007.
63. "GFP: A Molecular Microscope." Institute for Science Instruction and Study, Southern Connecticut University, New Haven, June 24, 2007.
64. "Computational Analysis of a Molecular Microscope", Rhode Island Computational Chemistry Summer Institute, Rhode Island College, Providence, June 29, 2007.
65. "F430 a tetrapyrrole in the entatic state" Vitamin B12 & Corphins Gordon Research Conference, July 3, 2007.
66. "Photophysical Analysis of GFP", Washington State University, Pullman, October 11, 2007.
67. Presented a Computational Chemistry and Biological Systems Workshop, Bates College, November 9, 2007.
68. "Glow", Invited lecture SciFest-Africa, Grahamstown, South Africa, April 17, 2008.
69. "Genetically modifying living organisms – right or wrong?" Talkshop SciFest-Africa, Grahamstown, South Africa, April 17, 2008.
70. "GFP-A Molecular Microscope" Chemistry Department, Rhodes University, April 16, 2008.
71. "Seeing a new world with fluorescent proteins" Rhode Island College, Center for Excellence in STEM Education, July 25, 2008.
72. "Photophysical Analysis of Fluorescent Proteins", Yale University, September 10, 2008.
73. "GFP: A Molecular Microscope", Hamilton College, September 19, 2008.
74. "Green Fluorescent Protein" Swedish Royal Society of Chemistry, Stockholm, Sweden, March 12, 2007
75. "GFP: From Jellyfish to Nobel Prize and Beyond", Niagara University, the Jack Hughes Bioinformatics Lecture, February 16, 2009.
76. "GFP: From Jellyfish to Nobel Prize and Beyond", Institute for Science Instruction and Study, Southern Connecticut University, New Haven, February 26, 2009.
77. "Chromophore Formation And Photophysics Of GFP And GFP-Like Proteins" Heidelberg University, July 10, 2009.
78. "GFP: Nobel Prize and Beyond." Mount Holyoke College, July 15, 2009.
79. "GFP: Nobel Prize and Beyond." Capitol Region Education Council High School Biotech Summer Camp, St. Josephs College, Hartford, July 23, 2009.
80. "Hula-Twisting in the Infrared Fluorescent Protein (IFP) Zone", American Chemical Society Northeast Regional Meeting, Hartford, October 10, 2009.
81. "Modeling and Understanding Infrared Fluorescent Proteins" Janelia Fluorescent Proteins and Biological Sensors II Meeting, Janelia Farm, HHMI Research Campus, November 2, 2009.
82. "GFP: Fluorescence from a different source." Fluorescent Mineral Society, Sterling Hill Mining Museum, November 14, 2009.
83. "Fluorescent Proteins in the High and Middle School Curriculum." A presentation to all the science teachers in the Bridgeport School System (A CEU event). February 8, 2010.
84. "Function and Photophysics of GFP-like Proteins" Oberlin College, 15 September 2010.
85. "Function and Photophysics of GFP-like Proteins" Grinnell College, 16 February 2011.
86. "Fluorescent Proteins: Science on the Edge" Institute for Science Instruction and Study, Southern Connecticut University, New Haven, March 3 2011
87. "Function and Photochemistry of Green Fluorescent Protein", Chemistry Department, Rhodes University, August 29, 2011.
88. "Green Fluorescent Proteins" Biochemistry Department, Rhodes University, South Africa, October 4, 2011.
89. "Function and Photochemistry of Green Fluorescent Protein", Nelson Mandela Metropolitan University, South Africa, September 21, 2011.

90. "Structural and Photophysical Properties of GFP-like Proteins", CSIR, Bioscience Division, South Africa, November 16, 2011.
91. "Structure and Function of Fluorescent Proteins", Wellesley College, December 11, 2012.
92. "Illuminating Disease", Genspace, Brooklyn, January 26, 2013.
93. "Illuminating Disease", Stroud Science Symposium Speaker, Kingswood Oxford School, Hartford, February 21, 2014.

POSTERS

1. "Empirical Force Field Analysis of the Cobalt-Bleomycin Binding Geometry." Inorganic Gordon Conference, Brewster Academy, July 28 1993.
2. "Molecular Mechanics and the Jahn-Teller Effect" with P. Comba First European Conference on Computation Chemistry, Nancy, France, April 1994.
3. "Molecular Mechanics and Coordination Chemistry" with P. Comba; P. Hilfenhaus; M. Stroehle, Molecular Recognition Involving Metal Complexes, Nagoya University, Japan, July 28, 1994.
4. "Electronic Effects in Molecular Mechanical Calculations of Transition Metal Compounds" with P. Comba and M. Stroehle, Annual Meeting of the Swiss Chemical Society, Bern, Switzerland, October 1994.
5. "Introduction of Advanced Instrumentation in General Chemistry" with S. Ching and V. Fontneau, 208th American Chemical Society Meeting, Washington, DC, August 1994.
6. "Modeling Manganese Clusters. Towards the Intelligent Design of Photosystem II models" with R. Manchanda, G. Brudvig and R. Crabtree, 208th American Chemical Society Meeting, Washington, DC, August 1994.
7. "Incorporating Computational Chemistry Through-out the Chemistry Curriculum.", Gordon Conference on Innovation in Chemical Education, Plymouth, New Hampshire, June, 1996.
8. "GFP chromophore formation. Structural and activational aspects." 9th International Symposium on Bioluminescence and Chemiluminescence, Woods Hole, August, 1996.
9. "GFP chromophore formation. Structural and activational aspects." ICCCRE, Pune, India, January 1998
10. "A Molecular Mechanical Analysis of the Active Site of Urease with a Special Emphasis on Determining the Binding Conformations Available to Oxygen-bound Urea." 9th International Conference on Biological Inorganic Chemistry, Minneapolis, Minnesota, July, 1999.
11. "Conformational/configurational Analysis of the Binding Geometries of Cobalt(III) Bleomycin" "Metals in Medicine" with Flavia Fedeles, NIH, June 28, 2000.
12. "Photophysics and Chromophore Cavity Analysis of Green Fluorescent Protein" N.Y. Baffour-Awuah, S. Maddalo, M. Zimmer, 30th FEBS Congress - 9th IUBMB Conference Budapest, Hungary, 3 July, 2005

REVIEWS OF GLOWING GENES AND GFP WEBSITE

1. "Glowing Genes", J. Vazquez, *The American Biology Teacher*, 2005, 67, 570.
2. "A Light When All Other Lights Go Out", Peter J. Tonge *Chemical & Engineering News*, 2005, 83, October 24.
3. "Glowing Genes" W.W. Ward, *Quarterly Review Biology*, 2005, 80, 473.
4. "Glowing Genes" V. Minerhout, *J. Chem. Ed.* 2006, 83, 215.
5. "Glowing Genes" J. Bojar, *Jurimetrics* Spring 2006, 1.

6. "Lighting Up Life" *Science* 2006, 313, 895.
7. "Best of the Web" *Genetic Engineering & Biotechnology News* August 2007.
8. "Modules in Emerging Fields, Green Fluorescent Protein." *The American Biology Teacher*, 2008, 70, 173-174.
9. GFP web site has been translated into German and Rumanian

STUDENT POSTERS

1. "The Mechanism of Metal incorporation into the Cavity of Macrocyclic Ligands, a Molecular Mechanical Analysis." C. Canales, presented at the Pfizer Summer Undergraduate Research Symposium.
2. "The Mechanism of Metal incorporation into the Cavity of Macrocyclic Ligands, a Molecular Mechanical Analysis." C. Canales, presented to the Corporate Advisory Board, Connecticut College.
3. "Binding modes of Bleomycin to Cobalt" Robert Charles, Rachel Warren, Marcella Ganly-Cunningham, Kimberly Spence, presented at the Inorganic Biochemistry Summer Workshop, University of Georgia, Athens, July 1991.
4. "Empirical Force Field Analysis of Metal Coordination Modes in Bleomycin, an Anticancer Drug." Kimberly Spence, Robert Charles, Marc Zimmer, presented at the 6th National Conference on Undergraduate Research, University of Minneapolis, MN, March 1992.
5. "Molecular Mechanical Analysis of the Cobalt binding site in Bleomycin" Kimberly Spence, presented at the Randolph T. Majors Symposium, University of Connecticut, April 1992.
6. "Molecular Mechanical Analysis of the Cobalt binding site in Bleomycin" Kimberly Spence, presented at the 13th Annual Undergraduate Research Symposium of the Connecticut Valley Section of the American Chemical Society, University of Connecticut, April 1992.
7. "Model Systems for Aldehyde Ferredoxin Oxidoreductase, a Tungsten Enzyme." Marguerite White, presented at the 13th Annual Undergraduate Research Symposium of the Connecticut Valley Section of the American Chemical Society, University of Connecticut, April 1992.
8. "Tungsten Model Systems for Aldehyde Ferredoxin Oxidoreductase." M. White, Symposium by the Pfizer Undergraduate Summer Research Fellows, Pfizer, October 16, 1992.
9. "Tungsten Model Systems for Aldehyde Ferredoxin Oxidoreductase." M. White, presented at the 7th National Conference on Undergraduate Research, Utah University, March 1993.
10. "Molecular Mechanical Analysis of the Cobalt binding site in Bleomycin" Jon Tuetting, presented to a meeting of the Connecticut College Trustees, May 1993.
11. "Intelligent Design of a Structural Urease Model System" Csilla Csiki, presented at the National Conference for Undergraduate Research, Union College, April 24, 1995.
12. "Conformational Analysis of Cobalt(III) Six-Membered Diamine Rings by Cluster Analysis." Fatima DaCruz, presented at the National Meeting of the American Chemical Society, New Orleans, March 23, 1996.
13. "Cluster analysis of copper(II) six-membered rings." M. Fatima DaCruz, presented at the National Meeting of the American Chemical Society in San Francisco, April 1997.

14. "Cluster Analysis of Fourteen Membered Nickel and Cobalt Tetraza Macrocycles." Maria Donnelly, Chris Cooper presented at the the National Meeting of the American Chemical Society in Boston, August 1998.
15. "Posttranslation Catalysis" Maria Donnelly presented at the the National Meeting of the American Chemical Society in San Francisco, March, 2000.
16. "Computational Analysis of Photoisomerization and Internal Conversion Pathways in Green Fluorescent Protein." Mike Bakaj, Andrew Warren, National Council for Undergraduate Research Meeting, Missoula , MT, April 28, 2000.
17. "Analysis of the Chromophore Cavity of Green Fluorescent Protein." Ming Chen, Summer Undergraduate Research Fellowship Meeting, Pfizer Inc., Groton, October, 13, 2000.
18. "Conformational Analysis of the Non-Planar Deformations of Cobalt Porphyrin Complexes in the Cambridge Structural Database" L. Desai, San Diego, National meeting of the American Chemical Society, April 3, 2001.
37. "Conformational/Configurational Analysis of All the Binding Geometries of Cobalt(III) Bleomycin." Flavia Fedeles, San Diego, National meeting of the American Chemical Society, April 3, 2001.
38. "Why do folding mutations decrease the thermosensitivity of Green Fluorescent Proteins?" Flavia Fedeles, The Clara M. Pike Undergraduate Chemistry Research Symposium, Wheaton College, MA. September 29, 2001.
39. "Computational Analysis of an Environmentally Important Metalloenzyme: Nitrile Hydratase" Lopa V. Desai The Clara M. Pike Undergraduate Chemistry Research Symposium, Wheaton College, MA. September 29, 2001.
40. "What are the steric restrictions to the rotation of the chromophore in the excited state of GFP and YFP?" Annie Chu, The Clara M. Pike Undergraduate Chemistry Research Symposium, Wheaton College, MA. September 29, 2001.
41. "Using the Cambridge Structural Database to Introduce Important Inorganic Concepts" Tiana V. Davis, M. Shahzad. Zaveer, The Clara M. Pike Undergraduate Chemistry Research Symposium, Wheaton College, MA. September 29, 2001.
42. "Computational Analysis of the Active Site of Methyl Coenzyme M Reductase" Lindsay Todd . The Clara M. Pike Undergraduate Chemistry Research Symposium, Wheaton College, MA. September 29, 2001.
28. "Computational Analysis of an Environmentally Important Metalloenzyme: Nitrile Hydratase." M. Zimmer, L. Desai*, 225rd ACS National Meeting, New Orleans, 2003.
29. "Why Do Folding Mutations Decrease the Thermosensitivity of Green Fluorescent Proteins?" M. Zimmer, F. Fedeles*, 225rd ACS National Meeting, New Orleans, 2003
30. "Structural Analysis of Tris(pyrazoyl)borate ligands" Heather De Bari, Marc Zimmer, MERCURY Conference in Computational Chemistry, Clinton, N.Y. July 30, 2003.
31. "Hula Twisting in Green Fluorescent Protein" Nana Yaa Baffour-Awua, Marc Zimmer, MERCURY Conference in Computational Chemistry, Clinton, N.Y. July 30, 2003.
32. "The Moderating Influence of the Protein Methyl Coenzyme-M Reductase on Non-planar Deformations of Coenzyme F430, and Structural Consequences of a Macrocycle Reduction Accompanying Reductive Activation." Lindsay Todd, Marc Zimmer, National Meeting of the American Chemical Society, Anaheim, March 25-30, 2004.
33. "The influence of the dimensions of the chromophore cavity on the conformational freedom and photophysical behavior of GFP and GFP-like proteins." M. Shahzad Zaveer, Marc Zimmer, National Meeting of the American Chemical Society, Anaheim, March 25-30, 2004.
34. "The Moderating Influence of the Protein Methyl Coenzyme-M Reductase on Non-planar Deformations of Coenzyme F430, and Structural Consequences of a Macrocycle

- Reduction Accompanying Reductive Activation.” Lindsay Todd, Marc Zimmer, Student Symposium and Awards Banquet, University of Connecticut, April 24, 2004.
35. “Hula-Twisting in Green Fluorescent Protein.” Nana Yaa A. Baffour-Awuah, Marc Zimmer, Double Helix at 50, Science Epicenter Benefit, Friday April 30, 2004.
 36. “Structural Analysis of the Conformational Flexibility of Tris(pyrazolyl)borate Ligands and Their Analogs.” Heather De Bari and Marc Zimmer, Double Helix at 50, Science Epicenter Benefit, Friday April 30, 2004.
 37. “Fast Forwarding Evolution by Computational Design” Kathleen Nguyen, Marc Zimmer, Mercury Conference, Hamilton College, July 29, 2004.
 38. “Structural Features Responsible for GFPuv and S147P-GFP's Improved Fluorescence.” Nana Yaa Baffour-Awuah, Flavia Fedeles, Marc Zimmer, Mercury Conference, Hamilton College, July 29, 2004.
 39. A Combined Homology/Conformational Searching Approach to modeling the Large Scale Domain Movements Observed in Firefly Luciferase - Justin Rosenberg, Marc Zimmer, Mercury Conference, Hamilton College, July 29, 2004.
 40. “Fast-forwarding Nidogen/GFP evolution by computational design” Xuan-Thao T. Nguyen, Marc Zimmer, National Meeting of the American Chemical Society, San Diego, March 13-17, 2005.
 41. “Structural features responsible for GFPuv and S147P-GFP's improved fluorescence.” Nana Yaa Baffour-Awuah, Flavia Fedeles, Marc Zimmer, National Meeting of the American Chemical Society, San Diego, March 13-17, 2005.
 42. “Homology modeling of Cdk4 with the T-loop in both the “in” and “out” conformations.” Rebecca S. Reeves, Martha J. Gossel, Marc Zimmer, National Meeting of the American Chemical Society, San Diego, March 13-17, 2005.
 43. “Determination of the conformational space available to the chromophore in GFP, GFP mutants and fluorescent proteins related to GFP.” Scott L. Maddalo, Marc Zimmer, National Meeting of the American Chemical Society, San Diego, March 13-17, 2005.
 44. “The effect of coordination number on hole-size and non-planar deformations of free coenzyme F430 and F430 in methyl coenzyme M reductase.” Curren Mbofana, Lindsay N. Todd, Marc Zimmer, National Meeting of the American Chemical Society, San Diego, March 13-17, 2005.
 45. “Homology Modeling and Protein Dynamics of Cyclin-dependent Kinase 4” Andrew Weber, Rebecca Reeves, Marc Zimmer, 4th Mercury Conference on Computational Chemistry, Hamilton College, July 27, 2005.
 46. “The effect of coordination number on the hole-size and non-planar deformations of free F430 and F430 in methyl coenzyme M reductase.” Curren Mbofana, Lindsay N. Todd, Marc Zimmer, 4th Mercury Conference on Computational Chemistry, Hamilton College, July 27, 2005.
 47. “Fast-forwarding Nidogen/GFP evolution by computational design.” Marissa Verlade, Marc Zimmer, 4th Mercury Conference on Computational Chemistry, Hamilton College, July 27, 2005.
 48. “Photophysics and chromophore cavity analysis of green fluorescent protein.” Kata Franczyk, Scott Maddalo, Marc Zimmer, 4th Mercury Conference on Computational Chemistry, Hamilton College, July 27, 2005.
 49. “Why Does asCP Display Kindling Behavior?” Allie Smith, Marc Zimmer, 4th Mercury Conference on Computational Chemistry, Hamilton College, July 27, 2005.
 50. “A Combined Homology/Conformation Searching Approach to Modeling the Large Scale Domain Movements Observed in Firefly Luciferase” Justin Rosenberg, Bruce Branchini, Marc Zimmer, 4th Mercury Conference on Computational Chemistry, Hamilton College, July 27, 2005.

51. "Chromophore formation in GFP: Computational Modeling of the Immature Form of wild-type GFP." M. Zimmer, N. Lemay Photonics West 2007, San Jose, January 23, 2007.
52. "Making Brighter Green Fluorescent Proteins." Scott Maddalo, M. Zimmer 2007 Posters on the Hill, Rayburn House, Washington, April 25, 2007.
53. "The Role of the Tight-Turn, Broken Hydrogen Bonding, Glu222 and Arg96 in the Post-translational Green Fluorescent Protein Chromophore Formation." Alicia Morgan, Smith College, American Chemical Society Connecticut Valley Section Undergraduate Symposium, April 26, 2008.
54. "The Search For Bioluminescent Proteins In The Global Ocean Sampling Expedition Database" Maywadee Chinavanichkit, American Chemical Society Connecticut Valley Section 2009 Undergraduate Symposium, Connecticut College, April 25, 2009.
55. "Photophysics and Dihedral Freedom of the Chromophore in Red Fluorescent Proteins" Vishwanie Persaud , Shuang Song Larson Hogstrom , Marc Zimmer American Chemical Society Northeast Regional Meeting, Hartford, October 10, 2009.
56. "Proton Wires in GFP-Like Proteins", Alex A. Samma , Wayne Ong , Samuel Alvarez , Shawn Mulcahy , Marc Zimmer American Chemical Society Northeast Regional Meeting, Hartford, October 10, 2009.
57. "Water diffusion in and out of the GFP β -barrel : TurboGFP And KillerRed." Binsen Li, Maritza Essis, Marc Zimmer, Mercury Conference On Computational Chemistry, Hamilton College, August 1-3, 2010
58. "GFP-like structures in the PDB – Photochemistry Chemistry and Proton Pumps." Samuel Alvarez, Ivan Leroux and Marc Zimmer, Mercury Conference On Computational Chemistry, Hamilton College, August 1-3, 2010
59. "GFP-like structures in the PDB – Natural Function & Cavity Effects." Ramza Shahid, Paola Peshkepija, Marc Zimmer Mercury Conference On Computational Chemistry, Hamilton College, August 1-3, 2010
60. Examining Chromophore Formation in GFP-like Structures, Amanda Amoh, Danielle L'Heureux, Marc Zimmer 11th Mercury Conference on Computational Chemistry, Bucknell University, July 26 – 28, 2012
61. Searching for the Function of Naturally Occurring Fluorescent Proteins, Christopher May, Steven Natera, Marc Zimmer, 11th Mercury Conference on Computational Chemistry, Bucknell University, July 26 – 28, 2012
62. Structural Changes in Mutant Firefly Luciferases, Matthew Zimmer, Marc Zimmer, 11th Mercury Conference on Computational Chemistry, Bucknell University, July 26 – 28, 2012
63. "The conformational space available to the retinal in Channelrhodopsin." Prapti Kafle, Marc Zimmer, 14th Mercury Conference on Computational Chemistry, Bucknell University, July 24 – 26, 2012
64. "Predicting fluorescent protein chromophore photo-isomerization using the eccentricity and the size of the protein's cross section." Mengezi Ngwenya, Marc Zimmer, 14th Mercury Conference on Computational Chemistry, Bucknell University, July 24 – 26, 2012
65. "Using Sequence and Structural Information from GFP-like Proteins to Design a Fluorescent Version of G2 Domain of Nidogen." Robert Langam, Marc Zimmer, 14th Mercury Conference on Computational Chemistry, Bucknell University, July 24 – 26, 2012
66. "Dihedral freedom of the ligand Bilirubin in the UnaG protein." Zinya Talukder, Marc Zimmer, 14th Mercury Conference on Computational Chemistry, Bucknell University, July 24 – 26, 2012

STUDENT PRESENTATIONS

1. "Conformational Study of the Binding of Copper(II) to *rac* and *meso* - 5,5,7,12,12,14-hexamethyl-1,4,8,11-tetraazacyclotetradecane." C. Canales, presented at the Fifth National Conference on Undergraduate Research, California Institute of Technology, Pasadena, March 21, 1991.
2. "The Mechanism of Metal incorporation into the Cavity of Macrocyclic Ligands, a Molecular Mechanical Analysis." C. Canales, presented at the Twelfth Annual Undergraduate Research Symposium of the Connecticut Valley Section of the American Chemical Society, St. Joseph College, Hartford, April 6, 1991.
3. "Coordination Modes of Cobalt to Bleomycin, a Common Antitumor Antibiotic." R. Charles, R. Warren, M. Ganly-Cunningham presented at the Twelfth Annual Undergraduate Research Symposium of the Connecticut Valley Section of the American Chemical Society, St. Joseph College, Hartford, April 6, 1991.
4. "The Relationship between the Structure of Metallobleomycins and their Activity." Jonathan Tueting, Meeting of the Trustees, Connecticut College, October 1, 1993.
5. "Cluster Analysis of Six-membered Cobalt Rings." Fatima DaCruz, Corporate Advisory Board, February 14, 1995.
6. "Intelligent design of Urease Mimic Systems." Csilla Csiki, Corporate Advisory Board, February 14, 1995.
7. "Constrained Solution Dynamics of Cobalt(III) Bleomycin." Jon Tueting, National Conference for Undergraduate Research, Union College, April 22, 1995.
8. "Homology modeling of Cdk4" Rebecca S. Reeves, Mount Holyoke College, April 23, 2005.
9. "Computational Evolution of a Fluorescent Nidogen Mutant" Curren Mbofana, Smith College, American Chemical Society Connecticut Valley Section 2008 Undergraduate Symposium, Saturday, April 26, 2008.
10. "Analysis Of The Relationship Between The Chemospatial Properties Of The Chromophore Cavity In Fluorescent Proteins, Their Color And Evolutionary Development." Doris Dekovic, American Chemical Society Connecticut Valley Section 2009 Undergraduate Symposium, Connecticut College, April 25, 2009.
11. "Photophysics And Dihedral Freedom Of The Chromophore In Red Fluorescent Proteins." Larson Hogstrom, American Chemical Society Connecticut Valley Section 2009 Undergraduate Symposium, Connecticut College, April 25, 2009.
12. "Computational Redesign of Tetratricopeptide Repeat Domains to Increase Binding Affinity" Alicia Morgan, Lynne Regan, Marc Zimmer, ACS Connecticut Valley Section, 2010 Undergraduate Research Symposium, April 24, 2010.

COMMITTEES ETC.

- American Chemical Society Connecticut Valley Section 2009 Undergraduate Symposium and Awards Lunch, Connecticut College, April 25, 2009, Stan Ching & Marc Zimmer Co-organizers.
- Chair Dean of Faculty Search Committee

- Co-Chaired and Organized “The Future of Force field Modeling of Metal Complexes in the DFT Age”, Pacificchem, Hawaii, December, 2005.
- Visiting Committee examining the Science division of Hobart William Smith Colleges, April 6-9, 2004.
- Strategic Planning Committee
- Steering Committee, National Science Foundation Undergraduate Research Summit, Bates College, August 2- August 4, 2003.
- Steering Committee, MERCURY Conferences in Computational Chemistry
- Chaired and organized Symposium entitled “Green Fluorescent Protein: Structural Basis of Properties and Activities” at the 32nd Annual Meeting of the American Society for Photobiology, Seattle, June 13, 2004.
- Member of the Executive Committee of the Center for Teaching and Learning
- Member of the Executive Committee of the Center for the Comparative Study of Race and Ethnicity
- Faculty Steering and Conferences Committee
- Priorities, Planning and Budget Committee
- Chair of the Search Committee for the Athletic Director
- General Education Spring Working Group, Co-chair
- Secretary of the Academic and Administrative Procedure Committee
- Secretary Faculty and Steering *ad-hoc* Committee Reviewing IFF
- Chair Self-Designed Interdisciplinary Majors Committee
- Chair Watson Fellowship Campus Selection Committee
- Chair Luce Fellowship Selection Committee
- Career Enhancing Life Skills Design team
- Education Faculty Liaison Committee
- Committee on Promotion and Tenure
- Parking Appeals Committee
- Search Committee Chemistry Department
- Committee on Academic Standing
- Dean’s Advisory Committee on Student Grievances
- German Search Committee
- CONSTRUCT Highschool Science Evaluation Committee
- Molecular Biology Search Committee
- Faculty Affirmative Action Committee
- Committee for Graduate Studies
- Environmental Scanning Committee
- Co-Chair General Education Working Committee

COURSES TAUGHT

- General Chemistry (CHM 103-4)
- Inorganic Chemistry (CHM 202)
- Advanced General Chemistry (CHM 107)
- Molecular Science (CHM 101)
- Glow (FYS 114)
- Inorganic Synthesis and Analysis (CHM 401)
- Environmental Chemistry (CHM 316)
- Protein Structure (CHM 417)
- South Africa: No Easy walk to Freedom (SA 3XX)

- CISLA seminar
- Taught a Computational Chemistry workshop funded by the German Science Foundation in the University of Heidelberg, Graduate College, Sept 14 – 20, 2002, Oct 9-13, 2006 and July 6-11, 2009.
- Biomedical Applications of Genetic Engineering, Semester at Sea, Spring 2013
- Airpollution, Semester at Sea, Spring 2013