

Robert Todd Bronson

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Education

Brigham Young University, Provo, UT

Ph.D. in Organic Chemistry, December 2003

Dissertation: "Molecular Chemosensors for Heavy Metals: From Synthesis to Reusable Device."

Advisor: Dr. Paul Savage

Committee: Dr. Jerald Bradshaw, Dr. Roger Harrison, Dr. Merritt Andrus, and Dr. Steven Fleming

Brigham Young University, Provo, UT

B. S. in Chemistry, April 1996

Emphasis: Biochemistry

Ricks College, Rexburg, ID

Emphasis: Chemistry (no degree awarded) 1992

Teaching and Research Experience

Associate Professor, Brigham Young University (2013-Present, Provo, UT)

Sophomore Organic Laboratory Coordinator – Responsibilities include:

- providing student instructional materials and online learning environments for all related courses taught in the department including those assigned to student instructors
- recruiting, training, and mentoring ~75 student employees annually, and as needed, such as teaching assistants, student instructors, stockroom assistants, video production assistants, and student supervisors
- budgeting for all related expenses such as chemical, equipment, and student labor costs
- assigning grades to all related courses taught in the department including those assigned to student instructors
- producing instructional videos that standardizes instruction and preparation
- supervising the instruction of ~12 sections of laboratory/year taught by student instructors

Teaching

- (2009-present) Sophomore Organic Laboratory for all chemistry and biochemistry majors, and some non-major sections (~4 sections/year, ~60 students/section).
- (2013-20, 2021-present) General Organic and Biochemistry (GOB) most Winter semesters (50-200 students).

Citizenship Assignments and Activities

- (2013-15) Department Lecture Preparation Coordinator – hired and trained student employees (~8/yr), developed several demonstrations related to the GOB course, developed safety protocols and policy for performing public magic shows both on and off campus.
- (2014-15) ACS chair elect – participated in regular meetings and activities while working closely with ACS leadership to learn responsibilities.
- (2016-17) ACS chair – Activities included: holding regular chapter meetings, coordinating the department's annual student research conference, coordinating award ceremonies for outstanding student research presentations and outstanding High School teaching, overseeing expenditures related to ACS activities, recruitment and mentoring of replacement leadership.
- (2018-19) ACS past chair – advised the new chair and facilitated the participation of faculty from UVU into leadership positions including a future chair and secretary to foster comradery and inclusion.
- (2013-2024) Department Safety Committee Member – As the former department safety officer, I serve as a founding member of the committee to provide support and context. I was the motivating voice for forming this committee with a non-faculty chair to diminish long-standing conflicts of interest concerning safety among the faculty.
- (2020-2024) Department Student Research Conference Coordinator - coordinating undergraduate/graduate student research presentations/judging (~200 students, ~50 judges) assigning judges from among the faculty and community friends of the department.
- (2009-2024) Department Organic Stockroom Coordinator – Duties include: hiring and training stockroom staff, providing and developing standard operating procedures, budgeting and ordering supplies, handling and disposing of chemical waste, and general maintenance.

Assistant Professor, Brigham Young University

2009-2013, Provo, UT

- Principally responsible for sophomore organic chemistry laboratory instruction, coordination and development.
- Mentoring a relatively large number of teaching assistants, stockroom assistants, and student instructors.
- Budgeting for chemical purchases and equipment maintenance that support the undergraduate organic chemistry lab.
- Other teaching responsibilities include sophomore organic and general organic and biochemistry courses.
- Serving as the department safety officer.

Assistant Professor, College of Southern Idaho

August 2003-April 2009, Twin Falls, ID

- Responsible for both classroom and laboratory instruction, as well as curriculum development, for sophomore organic chemistry and general organic and biochemistry courses.
- Implementation and development of the overall departmental student assessment strategy.
- Planning and supervising honors research projects including grant writing.
- Maintaining instrumentation involved with these courses including: newly updated 60 MHz NMR, GC, and FTIR.

Research Assistant, Brigham Young University

July 1998-August 2003, Provo, UT

- Lead researcher of a group consisting of visiting professors, post-doctoral staff, and graduate and undergraduate students in collaboration with several research groups in analytical, inorganic, and material science chemistry.
- Researched chemosensor development including: multi-step synthesis, purification, structure elucidation, analysis of photo-physical properties, determination of binding affinities, and surface chemistry.
- Proficient in the use of a number of instruments including: UV-Vis Spectrophotometer, Fluorometer, GC, FTIR and ^1H and ^{13}C NMR.

Teaching Assistant, Brigham Young University

Fall 1999, Provo, UT

Supervised undergraduate experiments in organic chemistry lab. Graded lab notebooks and quizzes. Held regular office hours. Evaluated by students, receiving a rating of "excellent".

Teaching Assistant, Brigham Young University

Fall 1998, Provo, UT

Held recitation sessions with undergraduates in both introductory and organic chemistry.

Tutor, Rick's College, (BYU-Idaho)

Winter 1991 and Fall & Winter 1992, Rexburg, ID

Arranged appointments and aided students in study skills and problem solving. Was often allowed to tutor students outside my emphasis. Tutored subjects including general chemistry, English, history, and physical science.

Grants, Awards, and Honors

- Pittsburgh Conference Memorial National College Grant \$18,000, 2006
- Invited peer reviewer for the Journal of Organic Letters, 2005
- Invited General Organic and Biochemistry Text Book Reviewer, 2004
- Roland K. Robbins Fellowship Award, Brigham Young University, 2002
- Semi-Finalist Student Entrepreneur of the Year Award, Brigham Young University, 2002
- Finalist Student Entrepreneur of the Year Award, Brigham Young University, 2001
- Research Recognized on the Cover of Journal of Organic Chemistry, July 13, 2001
- Research Fellowship Award, Brigham Young University, 1999
- Graduated Phi Kappa Phi, Brigham Young University, 1996
- Various Academic Scholarships, Rick's College/Brigham Young University, 1987-95

Publications

Polyelectrolytes as new matrices for secondary ion mass spectrometry. Lua, Y.Y.; Yang, L., Pew, C. A.; Zhang, F.; Fillmore, W. J.; Bronson, R. T.; Sathyapalan, A.; Savage, P. B.; Whittaker, J. D.; Davis, R.C.; Linford, M. R. *J. Am. Soc. Mass Spectrom.* **2005**, *10*, 1575-82.

Efficient immobilization of a cadmium chemosensor in a thin film: generation of a cadmium sensor prototype. Bronson, R. T.; Michaelis, D. J.; Lamb, R. D.; Hussein, G. A.; Farnsworth, P. B.; Linford, M. R.; Izatt, R. M.; Bradshaw, J. S.; Savage, P. B. *Org. Lett.*, **2005**, *7*, 1105-1108.

Origins of 'on-off' fluorescent behavior of 8-hydroxyquinoline containing chemosensors. Bronson, R. T.; Marco Montalti, M.; Prodi, L.; Zaccheroni, N.; Lamb, R. D.; Dalley, K. N.; Izatt, R. M.; Bradshaw, J. S.; Savage, P. B. *Tetrahedron*, **2004**, *60*, 11139-11144.

Characterization of Bis-8-Hydroxyquinoline-Armed Diazatrithia-16-crown-5 and Diazadibenzo-18-crown-6 Ligands as Fluorescent Chemosensors for Zinc. Kawakami, J.; Bronson, R. T.; Xue, G.; Bradshaw, J. S.; Savage, P. B.; Izatt, R. M. *J. Supramol. Chem.*, **2003**, *1*, 221-227.

Analysis of 5-chloro-8-methoxy-2-(bromomethyl)quinoline by XPS. Thomson, J.; Stoker, J.; Bunker, J.; Agbonkonkon, N.; Iyer, G.; Bronson, R. T.; Savage, P. B.; Linford, M. R.; Hussein, G. A. *Surface Science Spectra*, **2002**, *9*, 241-249.

Bis-8-hydroxyquinoline-Armed Diazatrithia-15-crown-5 and Diazatrithia-16-crown-5 Ligands: Possible Fluorophoric Metal Ion Sensors. Bronson, R. T.; Bradshaw, J. S.; Savage, P. B.; Fuangwasdi, S.; Lee, S. C.; Krakowiak, K. E.; Izatt, R. M. *J. Org. Chem.*, **2001**, *66*, 4752-4758. (This article was highlighted on the cover of the Journal of Organic Chemistry on July 13, 2001)

Synthesis of Diazadi(and tri)thiacrown Ethers Containing Two 5-Substituent(or 2-methyl)-8-hydroxyquinoline Side Arms. Bradshaw, J. S.; Song, H.; Xue, G.; Bronson, R. T.; Chira, J. A.; Krakowiak, K. E.; Savage, P. B.; Izatt, R. M. *Supramol. Chem.*, **2001**, *13*, 499-503.

A convenient synthesis and preliminary photophysical study of novel fluoroionophores: macrocyclic polyamines containing two dansylamidoethyl side arms. Xue, G.; Bradshaw, J. S.; Song, H.; Bronson, R. T.; Savage, P. B.; Krakowiak, K. E.; Izatt, R. M.; Prodi, L.; Montalti, M.; Zaccheroni, N. *Tetrahedron*, **2001**, *57*, 87-91.

New Tetraazacrown Ethers Containing Two Pyridine, Quinoline, 8-Hydroxyquinoline or 8-Aminoquinoline Side Arms. Yang, Z.; Bradshaw, J. S.; Zhang, X.; Savage, P. B.; Krakowiak, K. E.; Dalley, N. K.; Su, N.; Bronson, R. T.; Izatt, R. M. *J. Org. Chem.*, **1999**, *64*, 3162-317