

Ron D. Briggs, Ph.D.



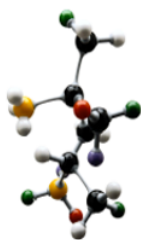
Arizona State University
School of Molecular Sciences
Tempe, AZ 85287

(480) 965-1905
ronbriggs@asu.edu
[ASU iSearch Profile](#)

HIGHLIGHTS

- 26 years post-secondary teaching experience in Introductory, General, Engineering, Organic, and Physical Chemistry
- Exceptional supervisor, peer, and student teaching reviews
- Multiple teaching awards and nominations
- Redesign of General Chemistry Program (for ~5,500 students/year) in conjunction with other faculty, saving over \$600,000 annually, while simultaneously improving access and impact
- Development and instruction of collaborative learning methods (including Inquiry) in lab, lecture, and recitation settings
- Significant reduction in student DEW (non-success) rates in 100-level courses
- Utilization of multimedia and emerging technologies in the classroom
- Dedicated community service and scholarly outreach
- Strong practical and theoretical background in scientific instrumentation

EDUCATION



Ph.D., Physical Chemistry (emphasis in Analytical Spectroscopy), 2004

University of California, San Diego and San Diego State University - San Diego, CA

Dissertation Title: "High-Resolution Nonlinear Laser Wave-Mixing Spectroscopy for Gas-Phase Environmental and Atmospheric Studies"

Advisor: Professor William G. Tong



M.A., Chemistry, 1999

San Diego State University

Advisor: Professor William G. Tong

B.S., Chemistry, 1994

University of California, San Diego



EXPERIENCE

2006-Present

General Chemistry Program Manager & Coordinator of Instructional Support

Arizona State University, School of Molecular Sciences, Tempe, AZ

- Managed General Chemistry Program at the largest university in the nation
- Coordinated over 26,000 hours of combined student time per week in lecture, lab, and recitation sections (CHM 101, 113, 114, 116)
- Hired, trained and/or supervised 15 faculty members and 100+ teaching assistants per semester
- Assigned course teaching assistants to ~500 class sections each semester
- Supervised/mentored chemical stockroom, demonstration room, Learning Resource Center (LRC), Supplemental Instruction (SI), and Discussion Session (DS) personnel
- Pioneered implementation of a \$650,000 Learner-Centered Education (LCE) course redesign initiative with General Chemistry faculty at three ASU campuses
- Supervised the development of new student success initiatives that dramatically improved student success and retention in service courses
- Planned and designed the new Chemistry Collaborative Learning Center (CCLC) in coordination with faculty and staff at multiple ASU offices
- Built complete class schedules and coordinated enrollment for all 100-level courses
- Maintained grade records for over 5,000 students per year
- Submitted textbook orders and organized collaborative efforts with publishers and vendors
- Served as point of contact for outreach and publicizing General Chemistry Program
- Collaborated on facility and technology renovation and repairs in multiple classrooms

- 2004-Present **Teaching Professor of Chemistry**
(Principal Lecturer 2017-2022, Senior Lecturer 2007-2012, Lecturer 2004-2007)
Arizona State University, School of Molecular Sciences, Tempe, AZ
- Designed curriculum, coordinated and supervised inquiry-based laboratory, recitation, and lecture exercises in Introductory, General, Physical, and Organic Chemistry
 - Mentored course teaching assistants
 - Coordinated over 2,000 hours of combined student time per week
 - Regularly received among the highest student evaluations in the School
 - Served on multiple committees: Undergraduate Programs Committee, Academic Operations Team (AOT), Committee on Teaching Assistants/Instructors (Chair), Learning Resource Center Committee (Chair), General Chemistry Instructional Programs Committee (Chair), Committee on School Planning, CLAS Contract Faculty Professional Development Committee, and multiple faculty/staff hiring committees
- 2003-2012 **Analytical Chemistry Consultant/Expert Witness**
San Diego, CA
- Analyzed GF-AAS, ICP-AES, and ICP-MS data for a prominent law firm
 - Worked under strict deadlines to deliver professional technical reports to a general audience
 - Provided expert testimony at deposition and in Federal Court
- 1996-2003 **Graduate Research Assistant**
Dr. William Tong Laser Spectroscopy Group at San Diego State University
- Developed and managed individual and joint research projects in both gas and liquid phases using novel technique of degenerate four-wave mixing (D4WM) spectroscopy
 - Performed experiments that coupled D4WM with a variety of different atomizers including the graphite furnace, cathode discharge, and inductively coupled plasma
 - Measured and reported the lowest current detection limits (parts-per-quadrillion level) for any technique of select atomic analytes
- 1999-2002 **Chemistry Instructor**
Summer Bridge, Health Careers Opportunity Program (HCOP), Upward Bound and Upward Bound Math/Science Programs
- Designed curriculum and research assignments for federally funded summer programs that provided experience to underrepresented and disadvantaged high school and college students from all over the world
 - Responded to unique student needs from a variety of different ethnic, social, and academic backgrounds
 - Assisted students in the development of several unique research projects and the creation of scientific web pages for publication on the campus web server
 - Supervised and evaluated a course teaching assistant
 - Received excellent instructional reviews from students and program administrators
- 1996-2003 **Graduate Teaching Assistant and Asst. Lab Coordinator**
San Diego State University and University of California, San Diego
- Coordinated undergraduate laboratory courses and managed grades and course preparation for over 500 students per semester
 - Instructed and evaluated over 50 students per semester in lecture and laboratory courses at two major universities
 - Designed, developed, and maintained the complete undergraduate chemistry web site with an average use of over 12,000 hits per semester
 - Maintained independent accountability for the instruction and upkeep of several advanced analytical and physical chemistry experiments in two upper-division college chemistry courses

PROFESSIONAL DEVELOPMENT & WORKSHOPS

- 2022 **27th Biennial Conference on Chemical Education (BCCE)**
West Lafayette, IN, July 31-Augues 4, 2022
- Co-authored presentation on undergraduate laboratory redesign and curriculum at ASU
- 2020 **26th Biennial Conference on Chemical Education (BCCE)**
(Terminated due to pandemic)
- Co-authored two presentations on pedagogical reform at ASU

- 2016 **24th Biennial Conference on Chemical Education (BCCE)**
Greeley, CO, July 31-August 4, 2016
- Co-authored two presentations on pedagogical reform at ASU
- 2014 **23rd Biennial Conference on Chemical Education (BCCE)**
Grand Valley, MI, August 3-7, 2014
- Participated in workshops and seminars on chemical education efforts in K-12, university courses
 - Co-authored three presentations on instructional practices at ASU
- 2011 **MasteringChemistry Online Recitation Activity Authoring**
(In collaboration with Pearson Arts & Sciences and ASU faculty), AY 2011-2012
- Authored new inquiry-based activities for use in general chemistry recitations
 - Collaborated with publisher and other faculty to convert printed activities into online format
 - Increased efficiency of Gen CHM course delivery through reduced grading overhead and shared resources
- 2011 **ALEKS Online Assessment Symposium (by Invitation)**
Washington, D.C., April 8, 2011
- Discussed issues in first year chemical education
 - Learned about Knowledge Space Theory and successful implementation strategies
- 2011 **McGraw Hill General Chemistry Symposium (by Invitation)**
Dana Point, CA, February 24-27, 2011
- Collaborated, shared, and exchanged ideas on best practices and development of course solutions
 - Explored teaching trends and digital learning tools in general chemistry with other chemical educators from around the nation in a 16-hour workshop format
- 2010 **21st Biennial Conference on Chemical Education (BCCE)**
Denton, TX, August 1-5, 2010
- Participated in workshops and seminars on recent advances in chemical education
 - Co-authored three presentations on collaborative learning and lab/recitation practices at ASU
- 2009 **MasteringChemistry & MyLabs Plus Workshop**
Arizona State University, September 22, 2009
- Participated in round table discussion of the online homework and course management system
 - Provided feedback to publishing representatives on current limitations of the package
- 2009 **Arizona Board of Regents (ABOR) /Learner Centered Education (LCE) Redesign Workshop**
Phoenix, AZ, August 13, 2009
- Discussed final outcomes of course redesign efforts at ASU, U of A, and NAU
 - Formulated recommendations to the Academic Affairs Committee concerning next steps with the LCE Program
- 2009 **ALEKS Online Assessment Workshop**
Arizona State University, July 16, 2009
- Learned about novel online assessment tools for freshman placement, self-advancement, and remediation
 - Participated in panel discussion with Provost, Vice Provost, and department representatives from Chemistry, Math, and English
- 2008 **Managing Change: Creating Effective Campus Learning Spaces**
Herman Miller Webinar, November 13, 2008
- Discovered new methods for aligning institutional strategy with learning space strategy
 - Discussed approaches for design and innovation projects to support pedagogical goals
 - Assessed effective strategies for documenting student learning through key metrics
- 2008 **Collegiate Learning Assessment (CLA) in the Classroom Academy**
Arizona State University, November 6-7, 2008
- Learned about rubric-based assessment
 - Brainstormed strategies for using performance-based assessment in courses
 - Planned administration and scoring of a disclosed CLA Performance Task, as well as how to use results to diagnose student work
 - Developed performance tasks to embed course content or concepts

- 2006-2007 **Arizona Board of Regents (ABOR)/ National Center for Academic Transformation (NCAT) Workshops in Curriculum Redesign (with Janet Bond-Robinson, Pam Marks, Rich Bauer, Holly Huffman), Arizona State University (Tempe and West campuses)**
- Learned effective course redesign strategies based on previous implementations at other universities across the nation
 - Participated in peer discussions with multidisciplinary faculty at Arizona State University, University of Arizona, and Northern Arizona University on optimizing the delivery of the general chemistry program while supporting higher enrollment and improving TA mentoring
 - Awarded the highest redesign grant of all proposals (\$100,000)
- 2006 **Chemical Education Seminar Series
Arizona State University, Fall 2006 Semester**
- Participated in peer-led discussions on learning models and chemical education publications
- 2006 **American Chemical Society Leaders Conference
Baltimore, MD, January 27-29, 2006**
- Developed management skills in the areas of goal setting, budget planning, meeting planning, volunteer recruitment, and communication
 - Networked with other ACS executive board members from all over the nation
- 2005 **Process Oriented Guided Inquiry Learning (POGIL) Teaching Workshop
Arizona State University, February 11, 2005**
- Discussed recent developments in cognitive learning theory
 - Engaged in chemistry active-learning exercises with peers from around the nation
 - Introduced methods of instructor-centered collaborative learning classroom approaches in concert with recent advances in chemical education research

PROFESSIONAL SERVICE & OUTREACH ACTIVITIES

- 2022 **Awards Judge, Chemistry Division**
Western Alliance to Expand Student Opportunities (WAESO), **Tempe, AZ, March 25-26, 2022**
- Interviewed and networked with underrepresented STEM students on original research projects
- 2020-2021 **School of Molecular Sciences (SMS) Director Search Committee**
Arizona State University, Spring 2020
- Elected by SMS faculty to help select the next school director in a nationwide search
- 2020 **Awards Judge, Chemistry Division**
Western Alliance to Expand Student Opportunities (WAESO), **Tempe, AZ, March 3, 2020**
- Interviewed and networked with underrepresented STEM students on original research projects
- 2020 **Redesigning University Academic Success Programs (UASP)**
Arizona State University, Spring 2020
- Participated in a focus group with CLAS faculty, Vice Provost, and outside consultants to improve various student success initiatives within the College
- 2019-present **Facilities Renovation Committee**
Arizona State University
- Participated in multiple planning meetings with other ASU faculty and staff to decide the location, format, and design of undergraduate teaching laboratories and recitation facilities
- 2018-2019 **Non-Tenure Track Professional Development Committee**
Arizona State University
- Participated in focus groups related to faculty development for CLAS non-track faculty
- 2016-present **Program Coordinator**
Discussion Session (DS) Program, Arizona State University
- Developed novel student support sessions in conjunction with other faculty
 - Achieved up to 74% student utilization with significant decreases in student withdrawal rates
 - Secured funding of up to \$14K per semester for supplemental pay of SMS Instructors

- 2016 **Grand Awards Judge, Chemistry Division**
Intel International Science & Engineering Fair (ISEF), Phoenix, AZ, May 10-11, 2016
- Interviewed students and reviewed independent research projects for scholarships and awards in excess of \$3 million at the largest international science project competition in the world
 - Participated in caucusing sessions and active debate among nearly 1,500 professionals from academia, business, government and industry
 - Encouraged student research and fostered scientific investigation through one-on-one discussion with promising young scientists
- 2013 **Grand Awards Judge, Analytical Chemistry Division**
Intel International Science & Engineering Fair (ISEF), Phoenix, AZ, May 14-15, 2013
- 2013 **Counterpart Exchange with Sichuan University**
Arizona State University, January 2013
- Hosted professor from Sichuan University in China
 - Discussed teaching strategies and classroom design of ASU General Chemistry Program
- 2012-2014 **School of Life Sciences (SOLS) and Department of Physics Active Learning Classroom Consultant**
Arizona State University
- Consulted in design of new multimedia-enhanced classrooms for life sciences and physics courses
 - Facilitated discussions between SOLS and General Chemistry Faculty and textbook publishers
- 2010 **Teaching Innovations in General Chemistry at Arizona State University (Workshop)**
Advanced Chemistry, Nanotechnology, Research Management and Innovations (ACNRMI) Program, Arizona State University, December 6 2010
- Detailed pedagogical advances in undergraduate chemistry at ASU
 - Led workshop for 66 international scientists on learning theory, collaborative exercises, online instruction, and effective chemical demonstration in collaboration with other ASU faculty and staff
- 2010 **MCAT Exam Comprehensive Review**
Arizona State University, Spring, 2010
- Completed science content survey, and provided input about the content of the future MCAT exam
- 2010 **Senior Scholars Luncheon**
Arizona State University, February 15, 2010
- Met with prospective students and their families at an annual recruitment event for the University
- 2008-2018 **Faculty Administrator**
Supplemental Instruction (SI) Program, Arizona State University
- Worked with ASU faculty, staff, and administration to bring proven peer-led tutoring opportunity to first year general chemistry (CHM 101, 113) students
 - Collaborated on administrative plans with program directors
 - Significantly increased SI participation among general chemistry students
 - Mentored student SI leaders
- 2008 **Oral Presentation Judge**
2008 Symposium on Research in Interdisciplinary Science & Engineering (RISE), October 5, 2008
- Judged oral presentations of graduate student research in Chemistry
- 2007 **Chair**
American Chemical Society (ACS), Central Arizona Section
- Coordinated outreach programs, general and technical seminars, and collaborative efforts for over 840 ACS members in the Central Arizona region
 - Planned local section meetings
 - Donated hundreds of college textbooks to local schools
 - Partnered with local industry to sponsor career shadowing events for local schools
 - Designed and maintained the local section web site
- 2006 **Chair-Elect**
American Chemical Society, Central Arizona Section
- Shadowed activities of current local section officers for service in 2007
 - Scheduled tour speakers for local engagements

- 2006-2007 **Faculty Administrator**
Teaching Teams Program, Arizona State University
- Integrated course-specific learning communities into CHM 101 and 113 curricula
 - Provided a proven method to allow students to interact with one another, develop leadership skills, earn higher grades, enhance their resumes, and network with faculty
- 2005 **Grand Awards Judge, Analytical Chemistry Division**
Intel International Science & Engineering Fair (ISEF), Phoenix, AZ, May 8-14, 2005
- 2004-present **Honors Project Advising**
Arizona State University, Department of Chemistry
- Mentored undergraduate students in support of the Barrett Honors College at ASU
 - Encouraged participation in peer learning groups for lower division chemistry courses
- 2002 **Undergraduate Research Symposium Judge**
San Diego State University
- Judged undergraduate research posters on content, style, and oral defense for cash awards
- 1999-2001 **Chemistry Lab Event Captain**
San Diego Regional Science Olympiad
- Created new written and experimental exams for student competition in the chemical sciences
 - Judged laboratory and problem solving skills of almost 100 students for regional awards and advancement to competition at the state level
 - Recruited and supervised volunteers for the development of additional chemistry events
- 1997-1998 **University Science Evaluator, Chemistry Support Specialist**
San Diego PISCES Project
- Evaluated new kit-based learning projects for use in K-12 student curriculum
 - Provided email support in chemistry, physics, and general science to facilitate the incorporation of material into daily lessons by educators

RESEARCH EXPERIENCE

Spectroscopic Methods

- Nonlinear and linear laser spectroscopy in gas and liquid phase systems
- Multi-photon optical methods
- Doppler-free and sub-Doppler spectroscopic methods
- Isotope and hyperfine studies including simulation by optical coherence theory
- Trace detection of atomic analytes (including environmental pollutants) at parts-per-quadrillion (ppq) levels
- Atomic spectroscopic detection of metals and non-metals
- Off-resonance spectroscopy of atmospheric species
- Intercombination transition spectroscopy
- Optogalvanic spectroscopy
- Graphite furnace, inductively coupled plasma, and dc cathode discharge atomizers
- Nonlinear frequency conversion and doubling crystals
- Vacuum systems and low pressure cells
- Plasma density mapping
- Polarization methods
- Ultra-sensitive photon detection methods
- Stimulated Raman Scattering (SRS)
- Laser Induced Fluorescence (LIF)
- Microwave Stark Spectroscopy
- Fourier Transform Infrared (FTIR) spectroscopy

Lasers and Optoelectronics

- External cavity tunable diode lasers
- Solid-state lasers (including near-IR, red, and blue semiconductor diodes)
- Nd:YAG lasers
- Pulsed dye lasers
- Red and green He-Ne lasers

- Argon Ion lasers
- Lock-in amplifiers, boxcar averagers, and mechanical choppers
- Laser wavemeters
- Photodetectors, polarizers, beamsplitters, line filters, and laser optics
- Fast oscilloscopes and function generators
- High voltage power supplies
- Active and passive filters, operational amplifiers, logic gates, etc.

Additional Instrumentation

- IR, UV, visible, and fluorescence spectrometers
- HPLC/LC/GC separation systems
- NMR spectrometers
- Flow meters and gas handling equipment
- Calorimeters
- Capillary Electrophoresis
- Micro-array Chips
- Gas Diffusion Cells

COMPUTER EXPERIENCE

- Mac OS 13.x, Apple iOS 16.x
- MasteringChemistry, ALEKS, WebAssign, Connect online homework systems
- Online Course Material Development/ Screencasting (ScreenFlow, Camtasia, Doceri)
- Microsoft Windows
- Canvas, Blackboard, and Sakai Academic Suites
- Adobe Illustrator, Adobe Photoshop, Corel Draw, Adobe Acrobat, MS Office, Apple Keynote, Apple Pages
- Multimedia presentation, editing, and conversion
- HTML design
- University Data Warehouse Clients: Peoplesoft, Hyperion, OASIS, ASTRA, Queensland
- Notebook DataLab, DADisp, SigmaPlot, MathCAD
- Analog-to-digital (AD), digital-to-analog (DA) conversion and computer interfacing

AWARDS & HONORS

- College of Liberal Arts and Sciences (CLAS) [Outstanding Lecturer Award \(2018/2019\)](#)
- Distinction of Merit and Scholastic Opportunity (DMSO) teaching award, student chosen (2015)
- Society for College and Urban Planning Institutional Innovation and Integration Award Nominee (2010)
- ASU Centennial Professorship Award Nominee (2009/2010)
- ASU Centennial Professorship Award Nominee (2007/2008)
- College of Liberal Arts and Sciences (CLAS) Innovation in Teaching Award Nominee (2009/2010)
- College of Liberal Arts and Sciences (CLAS) Outstanding Instructor/Lecturer Award Nominee (2015/2016)
- College of Liberal Arts and Sciences (CLAS) Outstanding Instructor/Lecturer Award Nominee (2012/2013)
- College of Liberal Arts and Sciences (CLAS) Outstanding Instructor/Lecturer Award Nominee (2009/2010)
- College of Liberal Arts and Sciences (CLAS) Outstanding Instructor/Lecturer Award Nominee (2007/2008)
- College of Liberal Arts and Sciences (CLAS) [Dean's Distinguished Teaching Award Winner \(2006/2007\)](#)
- College of Liberal Arts and Sciences (CLAS) Dean's Distinguished Teaching Award Nominee (2005/2006)
- Quality rating of 4.7/5.0 on [RateMyProfessors.com](#) with 300+ ratings
- Designated "Honors Disciplinary Faculty" for continued support of the Barrett Honors College (2006-present)
- "Favorite Teacher," College Affair Magazine (2006)
- "Most Outstanding Teaching Assistant," San Diego State University (1999)

GRANTS

- Briggs, Ron, Debreczeni, Agota, Sendler, Stacy, Hauck, Shelly, Smith, Rebeca, ["Expanding the Discussion Session \(DS\) Program Offered for General Chemistry Courses in the School of Molecular Sciences \(SMS\)"](#) from College of Liberal Arts & Sciences (CLAS) (2020)

- Briggs, Ron, Jones, Anne, \$10.2K grant for Discussion Sessions in General Chemistry from College of Liberal Arts & Sciences (CLAS) (2019)
- Briggs, Ron, Jones, Anne, \$8.7K grant for Discussion Sessions in General Chemistry from College of Liberal Arts & Sciences (CLAS) (2018)
- Briggs, Ron, Jones, Anne, \$5.4K pilot grant for new Discussion Sessions in General Chemistry from College of Liberal Arts & Sciences (CLAS) (2017)
- Briggs, Ron, Seerley, Shelly, Windman, Todd: MasteringChemistry Online Recitation Activity Authoring \$21K Work for Hire in collaboration with Pearson Arts & Sciences (2011-2012).
- Bond-Robinson, Janet, Bauer II, Richard C, Briggs, Ron D., Huffman, Holly Ann, Marks, Pamela Sue. Increasing Access, Retention, and Excellence in General Chemistry at all ASU Campuses. AZ BOARD OF REGENTS (7/15/2007 - 6/30/2009). Award Total: \$100,000 (plus additional funding from vendors).

AFFILIATIONS

- Past Chair and Member, American Chemical Society Central Arizona Section
- Past Member, Sigma Xi Scientific Research Society
- Who's Who in Academia

PUBLICATIONS

1. Briggs, R. D. High Resolution Nonlinear Laser Wave-Mixing Spectroscopy for Gas-Phase Environmental and Atmospheric Studies; Doctoral Dissertation, San Diego State University and University of California, San Diego, 2004.
2. Briggs, R., Mickadeit, F., and Tong, W. G., "Parts-Per-Quadrillion Level Detection of Cesium Using Graphite Furnace-Coupled Laser Wave Mixing Spectroscopy" (In Preparation).
3. Briggs, R., Lyons, W., and Tong, W. G., "Nonresonant Excitation and Detection of Atomic Oxygen Using Laser Wave-Mixing in a DC Hollow-Cathode Discharge Atomizer" (In Preparation)
4. Briggs, R., and Tong, W. G., "High-Resolution Absorption-Based Detection of Strontium Using Sub-Doppler Laser Wave-Mixing Spectroscopy" (In Preparation).
5. Briggs R, Schafer J, Lyons W, Tong W. G. "Sub-Doppler High-Resolution Wave-Mixing Detection Method for Isotopes in Environmental Applications", Proc. SPIE-Intl. Soc. Opt. Eng., Advanced Environmental, Chemical and Biological Sensing Technologies II, Vol. 5586, pp. 54-59, 2004.
6. Lyons, W., Gregerson, J., Schafer, J, Briggs, R. D., and Tong, W. G., "Nonlinear Wave-Mixing Spectroscopy for Sub-Doppler Isotope Analysis with Trace-Level Detection Sensitivity," Proc. SPIE-Photonics North 2005, Vol. 5971, 2005.
7. Recitation and Laboratory Activities for General Chemistry (preparing/compiling for publication in lab and recitation manuals).
8. Briggs, R. "New Classroom on the Way: General Chemistry is Bringing the THUNDER!", ASU Department of Chemistry & Biochemistry Newsletter, Summer, 2008.
9. Briggs, R. "From Cookbook to Discovery - Advancements in Chemical Education at ASU", ASU Department of Chemistry & Biochemistry Newsletter, Fall, 2008.
10. Briggs, R. "Overview of the General Chemistry Program at Arizona State University (ASU) and Preliminary Assessment of the General Chemistry Learner-Centered Education (LCE) Redesign Effort," (Unpublished) July, 2010.
11. "Rethinking Higher Education Spaces," 360° Magazine, 60, Steelcase, Inc., 2010 (Interview on pages 10-11).

PRESENTATIONS

1. B. Smith, R.D. Briggs, S. Sendler, "Designing New Undergraduate Teaching Labs at Arizona State University (ASU) to Support Pedagogical Improvements in General Chemistry Instruction," 2022 Biennial Conference on Chemical Education (BCCE), West Lafayette, IN, July 31-August 4, 2022
2. R.D. Briggs, B. Smith, A. Debreczeni, "Comparison of Peer-Led (Supplemental Instruction) and Instructor-Led (Discussion Session) Student Success Initiatives in the School of Molecular Sciences (SMS) at Arizona State University," 2020 Biennial Conference on Chemical Education. Abstract accepted March 31, 2020. Because of the global COVID-19 pandemic, the 2020 Biennial Conference on Chemical Education was terminated on April 2, 2020, by the Executive Committee of the Division of Chemical Education, American Chemical Society; and, therefore, this presentation could not be given as intended.
3. B. Smith, R.D. Briggs, "Laboratory Teaching Assistant Expert Videos," 2020 Biennial Conference on Chemical Education. Abstract accepted March 31, 2020. Because of the global COVID-19 pandemic, the 2020 Biennial Conference on Chemical Education was terminated on April 2, 2020, by the Executive Committee of the Division of Chemical Education, American Chemical Society; and, therefore, this presentation could not be given as intended.

4. S. Sendler, R.D. Briggs, B. Smith, "Online, Collaborative Kit-Based Activities for General Chemistry Recitations," 2016 Biennial Conference on Chemical Education (BCCE), Greeley, CO, July 31-August 4, 2016.
5. S. Sendler, B. Smith, R.D. Briggs, "Writing General Chemistry Lab Reports Based On Peer Edits and Guided Inquiry," 2016 Biennial Conference on Chemical Education (BCCE), Greeley, CO, July 31-August 4, 2016.
6. R.D. Briggs, P. Marks, S. Hauck, "Evolution of the Chemistry Collaborative Learning Center (CCLC) at Arizona State University: Lessons learned after 6 years and 35,000 students," 23rd Biennial Conference on Chemical Education (BCCE), Grand Valley, MI, August 3-7, 2014.
7. B. Smith, P. Marks, R.D. Briggs, and G. Cabirac, "Writing Lab Reports One Section at a Time," 23rd Biennial Conference on Chemical Education (BCCE), Grand Valley, MI, August 3-7, 2014.
8. P. Marks, R.D. Briggs, R. Bauer, J. Birk, A. Scruggs, "CHM 101 at Arizona State University: Past, Present, and Future," 23rd Biennial Conference on Chemical Education (BCCE), Grand Valley, MI, August 3-7, 2014.
9. R. D. Briggs, "Teaching Innovations in General Chemistry at Arizona State University (ASU)," Advanced Chemistry, Nanotechnology, Research Management and Innovations (ACNRMI) Program, Arizona State University, December 6 2010
10. R. D. Briggs, P. Marks, and G. Cabirac, "Design and Implementation of the new Chemistry Collaborative Learning Center (CCLC) at Arizona State University (ASU)," 21st Biennial Conference on Chemical Education (BCCE), Denton, TX, August 1-5, 2010.
11. G. Cabirac, P. Marks, and R. D. Briggs, "Challenges Associated with Guided Inquiry Laboratories: Strategies for Improving Effectiveness of Teaching Assistant Led Labs," 21st Biennial Conference on Chemical Education (BCCE), Denton, TX, August 1-5, 2010.
12. P. Marks, R. D. Briggs, and G. Cabirac, "ASU's Chemistry Collaborative Learning Center (CCLC): An Effective Learning Environment for over 5,500 Students Per Year," 21st Biennial Conference on Chemical Education (BCCE), Denton, TX, August 1-5, 2010.
13. R. D. Briggs, "Supporting Active Learning Environments in Large-Enrollment General Chemistry Courses," University of California, Riverside, July 27, 2010 (Invited Talk).
14. W. Lyons, M. Gregerson, J. Schafer, R. D. Briggs, and W. G. Tong, "Nonlinear Wave-Mixing Spectroscopy for Sub-Doppler Isotope Analysis With Trace-Level Detection Sensitivity," SPIE Regional Photonics North 2005, Toronto, Canada, September 12-14, 2005.
15. R. D. Briggs, J. Schafer, W. Lyons, and W. G. Tong, "Sub-Doppler High-Resolution Wave-Mixing Detection Method for Isotopes in Environmental Applications," SPIE International Symposium on Optics East--Advanced Environmental, Chemical, and Biological Sensing Techniques, Philadelphia, PA, October 25-28, 2004.
16. W. Lyons, R.D. Briggs, and J. Schafer, "Environmental and Atmospheric Applications of Sensitive Nonlinear Wave-Mixing Spectroscopy," 2003 American Chemical Society Western Regional Meeting, Long Beach, CA, October 15-18, 2003.
17. J. Schafer, R. D. Briggs, W. Lyons, and W. G. Tong, "Nonlinear Multi-Photon Spectroscopy for Trace-Concentration Isotope Detection and Hyperfine Analysis," 2003 American Chemical Society Western Regional Meeting, Long Beach, CA, October 15-18, 2003.
18. R. D. Briggs, W. Lyons, J. Schafer, and W. G. Tong, "High-Resolution Hyperfine Structure Measurements by Diode Laser-Based Wave Mixing," 226th American Chemical Society National Meeting, New York, NY, September 7-11, 2003.
19. J. Schafer, R. D. Briggs, W. Lyons, and W. G. Tong, "Laser Wave-Mixing Spectroscopy as a Tool for Mapping High-Temperature Plasma Atomizers," 226th American Chemical Society National Meeting, New York, NY, September 7-11, 2003.
20. W. Lyons, R. D. Briggs, J. Shafer, and W. G. Tong, "Nonlinear Laser Spectroscopy for Sensitive High-Resolution Detection of Environmental Isotopes," 226th American Chemical Society National Meeting, New York, NY, September 7-11, 2003.
21. W. Lyons, R. D. Briggs, and W. G. Tong, "High-Resolution Laser Wave Mixing Spectroscopy For Environmental and Atmospheric Analysis," 8th Annual Maria Goeppert-Mayer Interdisciplinary Symposium, San Diego, CA, March 1, 2003.
22. R. D. Briggs, and W. G. Tong, "Analytical, Geological, and Environmental Applications of Degenerate Four-Wave Mixing Spectroscopy," NASA Jet Propulsion Laboratory, Pasadena, CA, September 25, 2002 (Invited Talk).
23. W. Lyons, R. D. Briggs, and W. G. Tong, "Sensitive High-Resolution Detection Of Isotopes Using Multi-Photon Nonlinear Laser Spectroscopy," 224th American Chemical Society National Meeting, Boston, MA, August 18-22, 2002.
24. R. D. Briggs, W. Lyons, and W. G. Tong, "Compact Diode Laser-Based Wave-Mixing Spectroscopy for High-Resolution Gas-Phase Hyperfine Applications," 224th American Chemical Society National Meeting, Boston, MA, August 18-22, 2002.
25. R. D. Briggs, M. Lopez, and W. G. Tong, "Using Lasers in Chemical Research," Minority Biomedical Research Symposium, San Diego, CA, March 22, 2002.
26. H. K. Kemp, J. Schafer, R. D. Briggs, W. Lyons, and W. G. Tong, "Multi-Photon Nonlinear Spectroscopy as a Sensitive Optical Probe for Gas-Phase Population Mapping," Euro-Mediterranean Laser Induced Breakdown Spectroscopy Conference 2001 (EMLIBS), Cairo, Egypt, November 2001.
27. R. D. Briggs, H. K. Kemp, W. Lyons, and W. G. Tong, "Environmental Analysis and Elemental Trace Detection by Laser Wave-Mixing Spectroscopy," Euro-Mediterranean Laser Induced Breakdown Spectroscopy Conference 2001 (EMLIBS), Cairo, Egypt, November 2001.

28. W. Lyons, H. K. Kemp, R. D. Briggs, and W. G. Tong, "Compact Diode Laser-Based Nonlinear Spectroscopic Methods for Environmental and Atmospheric Applications," 37th American Chemical Society Western Regional Meeting, Santa Barbara, CA, October 28-31, 2001.
29. W. Lyons, H. K. Kemp, R. D. Briggs, and W. G. Tong, "Sub-Doppler Laser Spectroscopic Methods for Trace Analysis of Metals," 37th American Chemical Society Western Regional Meeting, Santa Barbara, CA, October 28-31, 2001.
30. R. D. Briggs, H. K. Kemp, and W. G. Tong, "Diode Laser-Based Nonlinear Laser Wave-Mixing Probes for Environmental Applications," 221st American Chemical Society National Meeting, San Diego, CA, April 1- 5, 2001.
31. H. K. Kemp, R. D. Briggs, and W. G. Tong, "Sensitive Sub-Doppler Nonlinear Spectroscopic Method for Simplified Isotope-Ratio Measurements," 221st American Chemical Society National Meeting, San Diego, CA, April 1- 5, 2001.
32. J. Schafer, R. D. Briggs, and W. G. Tong, "Sensitive Detection of Stable Isotopes In Geochemistry Using Multi-Photon Laser Wave-Mixing Spectroscopy," 221st American Chemical Society National Meeting, San Diego, CA, April 1- 5, 2001.
33. R. D. Briggs, F. Mickadeit, H. K. Kemp, and W. G. Tong, "Doppler-Free High-Resolution Laser Wave-Mixing Spectroscopy for Environmental Analyses," III International Symposium on Chemical Research in the Border Region, Tijuana, Mexico, November 16, 2000.
34. J. Knittle, H. K. Kemp, and R. D. Briggs, "Sub-Doppler Laser Wave-Mixing Spectroscopy for Environmental and Geological Applications," 36th American Chemical Society Western Regional Conference, San Francisco, CA, October 25, 2000.
35. H. K. Kemp, R. D. Briggs, F. Mickadeit, W. Lyons, and W. G. Tong, "Sub-Doppler Laser Wave-Mixing Spectroscopy for Environmental and Geological Applications," 2000 Pacific Conference on Chemistry and Spectroscopy, American Chemical Society for Applied Spectroscopy, San Francisco, CA, October 29-31, 2000.
36. J. Schafer, W. G. Tong, F. Mickadeit, H. K. Kemp, and R. D. Briggs, "High-Resolution, Sub-Doppler, Multiphoton, Wave-Mixing Spectroscopy for Isotope Analysis," 219th American Chemical Society National Meeting, San Francisco, CA, March 26, 2000.
37. H. K. Kemp, R. D. Briggs, and W. G. Tong, "Sensitive Gas Phase Sub-Doppler Laser Wave-Mixing Spectroscopy," 1999 National Minority Research Symposium, Phoenix, AZ, November 10-13, 1999.
38. R. D. Briggs, and W. G. Tong, "High-Resolution Sub-Doppler Wave-Mixing Laser Spectroscopy for Isotope and Hyperfine Structure Analyses," 1999 Pacific Conference on Chemistry and Spectroscopy, American Chemical Society Applied Spectroscopy, Ontario, CA, October 6-8, 1999.

PUBLICATION/TEXTBOOK REVIEWS

1. Brown, LeMay, Bursten, Murphy, Woodward, "Chemistry The Central Science, 13th Ed.," Pearson Prentice Hall, 2013
2. Brown, LeMay, Bursten, Murphy, Woodward, "Chemistry The Central Science, 12th Ed.," Pearson Prentice Hall, 2012
3. Silberberg, Martin, "Chemistry: The Molecular Nature of Matter and Change, 6th Ed.," McGraw Hill, 2012
4. Zumdahl, Zumdahl, "Chemistry, 9th Ed.," Brooks Cole, 2011
5. MasteringChemistry Online Multimedia Tutorial Question Review, Pearson Prentice Hall, 2010-2014
6. Gilbert, Kirss, Foster, Davies, "Chemistry, 3rd Ed.," W.W. Norton & Co., 2010
7. General Chemistry Text (untitled, in preparation), John Wiley & Sons, 2009
8. General Chemistry Text (untitled, in preparation), Cengage, 2009
9. CATALYST Online Homework/Learning System, John Wiley & Sons, 2008
10. Burge, J, "General Chemistry, 1st Ed.," McGraw Hill, 2008
11. Halpern, A., McBane, G., "Experimental Physical Chemistry, 3rd Ed.," W.H. Freeman & Co., 2006

REFERENCES

Professional References available upon request