

DAVID R. BROWN

Professor of Chemistry, Southwestern College
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ACADEMIC PREPARATION

University of California, San Diego

Department of Chemistry and Biochemistry
Postdoctoral Scholar, 1990-1992; Sponsor: D.R. Kearns

University of Illinois at Urbana-Champaign

Ph.D. in Physical Chemistry, 1990; Graduate Advisor: R.L. Belford
Thesis: *S-Band Electron Spin Echo and Multifrequency EPR Investigations of Disordered Solids*

Southern Illinois University, Edwardsville

B.A. in Chemistry, 1982; Minors in Engineering and Mathematics

EMPLOYMENT HISTORY

National Science Foundation, Arlington, Virginia

Program Director, August 2012-August 2015
Division of Undergraduate Education
Directorate for Education and Human Resources

Southwestern College, Chula Vista, California

Professor of Chemistry, 2000-present
Physical Sciences Department Chair, 2000-2002
Assistant Professor of Chemistry, 1996-2000

University of California, San Diego

Chemistry Instructor, Academic Enrichment Programs, 1991-1996
Research Associate, School of Medicine, 1995-1997

Adjunct Faculty Appointments

MiraCosta College, Cardiff by the Sea, California, August 1993-May 1996
Miramar College, San Diego, California, January-August 1994
Southwestern College, Chula Vista, California, August-December 1992

University of Illinois at Urbana-Champaign

Graduate Teaching Assistant, Department of Chemistry, 1983-1989

St. Louis University School of Medicine

E.A. Doisy Department of Biochemistry
Research Assistant, 1982-1983

HONORS AND AWARDS

Award for Incorporating Sustainability into Chemistry Education, American Chemical Society Committee on Environmental Improvement, **2012**.

Directed research students selected to present their results in the *Posters on the Hill* event sponsored by the Council on Undergraduate Research, Washington, DC, April **2008**.

Stanley C. Israel Award for Advancing Diversity in the Chemical Sciences, American Chemical Society Western Region, **2007**.

RESEARCH ACTIVITIES

Southwestern College, Chula Vista, California

Department of Chemistry

Have directed research activities for more than 30 community college students. Areas of interest include molecular spectroscopy, electrochemistry and new materials development.

Collaborations have involved investigators from major academic research institutions and industry partners. Projects have ranged from characterizing photonic glass materials, polymer films, and luminescent rare earth oxide nanoparticles to electrochemical production of miniature antimony electrodes to measurement of water levels in human cells genetically modified to tolerate desiccation.

University of California, San Diego

School of Medicine, Cancer Center

Research Associate, 1995-1997

Led the installation efforts of a new Varian 500 MHz NMR spectrometer used in glycobiology research. Duties included working closely with engineers from the manufacturer to prepare the spectrometer room with all the necessary components to support the operation of the instrument (e.g., electrical power, compressed air, furnishings, etc.). From 1995-1996, I was the primary spectroscopist, acquired spectra for other investigators and was the liaison with the manufacturer for upgrades and troubleshooting activities.

University of California, San Diego

Department of Chemistry and Biochemistry

Postdoctoral Research Associate, 1990-1992

Central focus was to determine the structure of complexes formed between an antitumor agent, Actinomycin D, and a DNA hairpin species. The methods employed included high resolution, multidimensional and multinuclear NMR spectroscopy and computational structure calculations from experimental NMR data. As a side project, I modified a "home-built" NMR spectrometer to include a second RF channel, used for double resonance and solvent suppression applications.

University of Illinois, Urbana-Champaign

Department of Chemistry

Graduate Research Assistant, 1983-1990

Research toward completion of a Ph.D. dissertation included the design, construction and operation of the world's first time-domain S-Band Electron Paramagnetic Resonance spectrometer. In addition to obtaining insight into molecular and electronic structures of paramagnetic systems in a new and unique manner, the project provided considerable experience with assorted microwave and RF components, digital and analog circuitry, computer interfacing, and a variety of test equipment.

St. Louis University School of Medicine

E.A. Doisy Department of Biochemistry

Research Assistant, 1982-1983

Responsible for the operation and maintenance of a gas chromatograph/mass spectrometer used in the analysis of various steroidal compounds. Maintenance of the spectrometer included several major repairs, which provided ample opportunities to gain experience with high-voltage and high-vacuum devices.

PUBLICATIONS

1. **D.R. Brown**, "Diversifying the STEM Professional Workforce by Building Capacity at a Two-year College on the U.S.-Mexico Border," in *Diversity in the Scientific Community Volume 2: Perspectives and Exemplary Programs*; H.N. Cheng and D.J. Nelson, Eds.; ACS Symposium Series 1256, American Chemical Society: Washington, DC, **2017**, Chapter 7, 79-90.
2. O.A. Graeve, H. Fathi, J.P. Kelly, M.S. Saterlie, K. Sinha, G. Rojas-George, R. Kanakala, **D.R. Brown**, and E.A. Lopez, "Non-optimized Reverse Micelle Synthesis of Oxide Nanopowders: Mechanisms of Precipitate Formation and Agglomeration Effects," *J. Colloid Interface Sci.* **2013**, *407*, 302-309.
3. H. Ungar and **D.R. Brown**, "Strengthening Relationships between Chemistry Faculties at Two-Year and Four-Year Institutions," *J. Chem. Educ.* **2010**, *87*, 885-886. [Invited Editorial]
4. H. Ungar and **D.R. Brown**, "ChemEd Bridges: Building Bridges between Two-Year College Chemistry Faculty and the National Chemical Education Community," *J. Chem. Educ.* **2010**, *87*, 572-574.
5. **D.R. Brown**, "Infrared Spectroscopy as a Preview of Coming Attractions: Teaching Chemistry with Instrumental Methods at Two-Year Colleges," *J. Chem. Educ.* **2010**, *87*, 570-571.
6. **D.R. Brown** and K.L. Tyner, "Leading the Way: Creating an Institutional Undergraduate Research Culture," in *Broadening Participation in Undergraduate Research: Fostering Excellence and Enhancing the Impact*; M.K. Boyd and J.L. Wesemann, Eds.; Council on Undergraduate Research: Washington, DC, **2009**, 230-233.

7. **D.R. Brown**, "Engaging Undergraduates in Chemical Research at Southwestern College," in *Undergraduate Research at Community Colleges*; B.D. Cejda, and N. Hensel, Eds.; Council on Undergraduate Research: Washington, DC, **2009**, 41-51.
8. **D.R. Brown**, T.B. Higgins, and P. Coggins, "The Increasing Presence of Undergraduate Research in Two-Year Colleges," *CUR Quarterly* Winter **2007**, 24-28.
9. **D.R. Brown**, "Undertaking Chemical Research at a Community College," *J. Chem. Educ.* **2006**, *83*, 970-972.
10. O.A. Graeve, S. Varma, G. Rojas-George, **D.R. Brown**, and E. A. López, "Synthesis and Characterization of Luminescent Yttrium Oxide Doped with Tm and Yb," *J. Am. Ceram. Soc.* **2006**, *89* [3], 926-931.
11. I. Puhlev, N. Guo, **D.R. Brown**, and F. Levine, "Desiccation Tolerance in Human Cells," *Cryobiology* **2001**, *42*, 207-217.
12. N. Guo, I. Puhlev, **D.R. Brown**, J. Mansbridge, and F. Levine, "Trehalose Expression Confers Desiccation Tolerance on Human Cells," *Nature Biotechnology* **2000**, *18*, 168-171.
13. **D.R. Brown**, M.K. Kurz, D.R. Kearns, and V.L. Hsu, "Formation of Multiple Complexes between Actinomycin D and a DNA Hairpin: Structural Characterization by Multinuclear NMR," *Biochemistry* **1994**, *33*, 651-664.
14. R.B. Clarkson, Wei Wang, **D.R. Brown**, H.C. Crookham, and R.L. Belford, "Electron Magnetic Resonance of Standard Coal Samples at Multiple Microwave Frequencies," *Adv. Chem. Ser.* **1993**, *229*, 507-528.
15. R.B. Clarkson, **D.R. Brown**, J.B. Cornelius, H.C. Crookham, W. Shi, and R.L. Belford, "S-Band Electron Spin Echo Spectroscopy," *Pure and Applied Chem.* **1992**, *64*, 893-902.
16. R.B. Clarkson, W. Wang, **D.R. Brown**, H.C. Crookham, and R.L. Belford, "Multi-frequency EPR Studies of Argonne and Illinois Sample Bank Coals," *Fuel* **1990**, *69*, 1405-1411.
17. R.B. Clarkson, M.D. Timken, **D.R. Brown**, H.C. Crookham, and R.L. Belford, "Enhancement of Nuclear Modulation in Electron Spin Echoes at Low Magnetic Fields: S-Band ESE Spectrometer," *Chemical Physics Letters* **1989**, *163*, 277-281.
18. K.A. Foster, M.D. Timken, **D.R. Brown**, D.G. van Derveer, R.L. Belford, and E.K. Barefield, "EPR Evidence for Magnetic Exchange through a Four-Carbon Aliphatic Bridge in a Binuclear Copper(II) Complex," *J. Coordination Chemistry* **1988**, *19*, 123-137, invited paper, Darryl Busch commemorative issue.

SELECTED PROFESSIONAL HIGHLIGHTS

National Advisory Board Member, NSF-supported project (Grant No. DUE 1725320) "Using Networks to Scale Improvement of STEM Undergraduate Education: A Comparative Study of Network Goals, Processes, and Strategies to Advance Organizational Change," **2017-2020**.

Organized NSF Symposium: "Equity Issues and their Impact on Broadening Participation in STEM: Perspectives from the Community College Sector," NSF Headquarters, Arlington, VA, June **2015**.

Invited Participant: White House Regional Summit on College Opportunity, California State University Northridge, Northridge, CA, October **2014**.

Invited Participant: President's Advisory Commission on Excellence in Education for Hispanics, U.S. Department of Education, Washington, DC, December **2013**.

Master Mentor for NSF-funded program: "MentorLinks: Advanced Technological Education," American Association of Community Colleges (NSF Award DUE 0703130), **2011-2012**.

Invited Participant: White House - U.S. Department of Education Regional Summit on Community Colleges, San Diego City College, San Diego, CA, April **2011**.

Invited participant: "Workshop on Increasing Participation of Hispanic Undergraduates in Chemistry," ACS Headquarters, Washington, DC, November **2008**.

Mentor for NSF-funded program: "MentorLinks: Advanced Technological Education," American Association of Community Colleges (NSF Award DUE 0703130), **2008-2010**.

SELECTED INVITED PRESENTATIONS

"Using Data to Advance Community College Initiatives Locally and at the National Level," Plenary Talk at NSF INCLUDES Conference, UC San Diego, La Jolla, CA, January **2017**.

"Diversifying the STEM Professional Workforce by Building Capacity at a Two-year College on the U.S.-Mexico Border," Presidential Symposium, 251st ACS National Meeting, San Diego, CA, March **2016**.

"The Important Role Community Colleges Serve to Promote Diversity in the STEM Professional Workforce," STEM Symposium, El Paso Community College, El Paso, TX, January **2016**.

"NSF Support for Innovation in Undergraduate STEM Education and Workforce Development," Master Seminar for *Innovations* Conference, League for Innovation in the Community College, Boston, MA, March **2015**.

"Project iLASER: An IYC 2011 Endeavor to Engage the Public in Sustainable Energy and Nanotechnology," South Texas ACS Local Section Meeting, McAllen, TX April **2013**.

"Undergraduate STEM Education: Indicators to Guide Us into the Future," STEM Colloquium, Monroe Community College, Rochester, NY, March **2013**.

"Project iLASER: An IYC 2011 Outreach Endeavor in Sustainable Energy and Nanotechnology," Southern Nevada ACS Local Section Meeting, Las Vegas, NV, October **2012**.

"Project iLASER: Celebrating the International Year of Chemistry 2011," Symposium for the ACS-CEI Award for Incorporating Sustainability into Chemistry Education, 243rd ACS National Meeting, San Diego, CA, March **2012**.

"Project iLASER: Engaging the Public in IYC 2011," San Diego ACS Local Section Meeting, January **2012**.

"The International Year of Chemistry 2011: Exploring Nanotechnology, Clean Energy Production, Advances in Health Care, and the Environment," Senior Mondays Program, Reuben H. Fleet Science Center, San Diego, CA, December **2011**.

"Project iLASER: Celebrating the International Year of Chemistry 2011 along the U.S.-Mexico International Border," Plenary Talk at 46th Mexican Congress of Chemistry and 30th National Congress of Chemical Education, Querétaro, Mexico, September **2011**.

"Chemistry - Our Life, Our Future," Keynote Address at *A Celebration of the International Year of Chemistry 2011*, St. Louis Community College, St. Louis, MO, March **2011**.

"NSF Grant Opportunities for STEM Education," Convocation - Division of BAT, Math, Science and Developmental Studies, South Texas College, McAllen, TX, January **2011**.

"Establishing a Community of Chemistry Scholars," Workshop on Increasing Participation of Hispanic Undergraduate Students in Chemistry, ACS Headquarters, Washington, DC, November **2008**.

"When Challenge Collides with Opportunity," D.R. Brown, Keynote Address at 182nd Conference of the Two-Year College Chemistry Consortium, Las Vegas, NV, September **2008**.

NSF Brown Bag Lecture: "Chemical Research at a Community College," NSF Headquarters, Arlington, VA, February **2006**.

NATIONAL SCIENCE FOUNDATION GRANTS AND SUBAWARDS

Served on 17 NSF proposal review panels for CCLI, ATE, I-Cubed, S-STEM, IUSE and SBIR Phase IB programs.

PI on "EAGER: Implementing Active Learning Strategies in Two-Year Hispanic-Serving Institutions: Impacts on Faculty Change and Student Success in STEM Courses," NSF IUSE program, \$288,978, **2017** (DUE 1645083).

PI on subaward to support two workshops held at Southwestern College on *Materials Science and Nanotechnology* from the "Chemistry Coalitions, Workshops and Communities of Scholars (cCWCS)" project, NSF TUES program, \$29,852, **2017 and 2010**. The grant PI was Jerry Smith at Georgia State University (DUE 1022895).

PI on "Project iLASER - Celebrating the International Year of Chemistry 2011," NSF Chemistry and Informal Science Education programs, \$150,000, **2011** (CHE 1118663).

Co-PI on "Project TUESTYC: A Workshop and Mentoring Program for Two-Year College Faculty," NSF TUES program, \$200,000, **2011** (DUE 1129271).

Co-PI on "Broadening Participation in CCLI: a Workshop and Mentoring Program for Two-Year College Faculty," NSF TUES program, \$199,041, **2010** (DUE 1029031).

PI on "A CCLI Proposal Preparation Workshop for Two-Year College Chemistry Faculty," NSF CCLI program, \$49,999, **2009** (DUE 0924269).

PI on subaward "Formulation and Infrared Characterization of Polymeric Coating on a pH Sensor," NSF SBIR Phase IICC grant to Sierra Medical Technology, \$30,000, **2009** (IIP 0900988).

PI on subaward "Synthesis of High-Quality Antimony Electrodes," NSF SBIR Phase IICC grant to Sierra Medical Technology, \$30,000, **2009** (IIP 0900987).

Co-PI on "Bridging Community College Chemistry Faculty into the National Educational Community," NSF CCLI program, \$200,000, **2007** (DUE 0737166).

PI on subaward "Nanofabrication of Optical Structures," from NSF SBIR Phase IICC grant to Ondax, Inc., \$30,000, **2007** (IIP 0710697).

PI on subaward "Characterization of Glass Holographic Gratings in the Mid to Far Infrared Range," NSF SBIR Phase IICC grant to Ondax, Inc., \$30,000, **2007** (IIP 0710696).

PI on subaward "A Novel Synthesis and Sintering Process for Nanostructured Oxide and Carbide Ceramic Composites," NSF Collaborative Research, Ceramics grant to University of Nevada, Reno (PI Olivia Graeve), \$19,424, **2005** (DMR 0503017).

PI on "Establishing a Program in Chemical Technology at Southwestern College," NSF ATE program, \$211,615, **2001** (DUE 0101729).

PI on "Instrumentation to Enhance the Chemistry Curriculum at Southwestern College," NSF ILI program, \$73,426, **1998** (DUE 9850951).

CONFERENCE PROCEEDINGS – SELECTED ORAL PRESENTATIONS

"Implementing active learning strategies in two-year Hispanic-serving institutions: Impacts on faculty change and student success in STEM courses," D.R. Brown, S. Brydges, S. Lo, M.E. Denton and M. Borrego, 25th Biennial Conference on Chemical Education, South Bend, IN, July **2018**.

"The Important Role Community Colleges Serve to Promote Diversity in the STEM Professional Workforce," D.R. Brown, 213th Conference of the Two-Year College Chemistry Consortium, San Diego, CA, March **2016**.

"Project iLASER: Engaging the Public in an Appreciation for Chemistry with a Focus on Sustainable Energy," D.R. Brown, International Chemical Congress of Pacific Basin Societies, Honolulu, HI, December **2015**.

"Producing a More Diverse STEM Professional Workforce: The Role of the Two-Year Colleges," D.R. Brown, 211th Conference of the Two-Year College Chemistry Consortium, St. Charles, MO, September **2015**.

"Dialogue on the Improving Undergraduate STEM Education Program," D.R. Brown and M. Boylan, CUR Dialogues, Council on Undergraduate Research, Washington, DC, February **2015**.

"NSF Funding Opportunities in STEM Education," D.R. Brown and V.C. Carter, STEMtech Conference, League for Innovation in the Community College, Denver, CO, November **2014**.

"Support for Undergraduate Chemistry Education from the National Science Foundation," D.R. Brown, D. Rickey and N. Bennett, ACS Central Regional Meeting, Pittsburgh, PA, October **2014**.

"Sharing One's Passion for Chemistry at a Two-Year College: Producing High Yields of Professional and Personal Fulfillment," D.R. Brown, ACS Central Regional Meeting, Pittsburgh, PA, October **2014**.

"Funding Opportunities at the National Science Foundation to Support Undergraduate STEM Education," D.R. Brown, J. Krupczak and V.C. Carter, High Impact Technology Exchange Conference, Chicago, IL, July **2014**.

"National Science Foundation Investments in Undergraduate STEM Education and STEM Workforce Development," D.R. Brown, International Society for Technology in Education Conference, Atlanta, GA, June **2014**.

"National Science Foundation Investments in Undergraduate STEM Education and STEM Workforce Development," D.R. Brown, AACC Future Leaders Institute, Washington, DC, June **2014**.

"NSF-supported Projects that Involve International Collaboration," D.R. Brown, 100,000 Strong in the Americas Capacity Building Workshop, U.S. State Department, San Diego, CA, May **2014**.

"Funding Opportunities in STEM Education that support Community and Technical Colleges," D.R. Brown and V.C. Carter, AACC Annual Convention, Washington, DC, April **2014**.

"Programs in the NSF Division of Undergraduate Education that support creativity and innovation in STEM education," D.R. Brown, 204th Conference of the Two-Year College Chemistry Consortium, Dallas, TX, March **2014**.

"Extracurricular Activities as Mechanisms to Enhance the Academic and Professional Accomplishments of Chemistry Students in Two-year Colleges," D.R. Brown, 247th ACS National Meeting, Dallas, TX, March **2014**.

"National Science Foundation Investments in STEM Workforce Development," D.R. Brown, U.S.-Mexico Bilateral Forum on Higher Education, U.S. State Department, Arlington, VA, February **2014**.

"National Science Foundation Investments in STEM Workforce Development," D.R. Brown, AACC Workforce Development Institute, St. Petersburg, FL, January **2014**.

"NSF Funding Opportunities and Proposal Writing Strategies," D.R. Brown and D. Campbell, Council for Resource Development Annual Conference, Washington, DC, November **2013**.

"NSF SBIR Phase IICC Supplements in Action," D.R. Brown, NSF ATE PI Conference, Washington, DC, October **2013**.

"NSF Funding Opportunities," D.R. Brown and V.C. Carter, High Impact Technology Exchange Conference, Austin, TX, July **2013**.

"Chemistry and Chemists within the Division of Undergraduate Education at the NSF," D.R. Brown, J.J. Grabowski, D. Rickey, and H.H. Richtol, 245th ACS National Meeting, New Orleans, LA, April **2013**.

"Project iLASER: An International Year of Chemistry 2011 Project Still Going Strong in 2013," D.R. Brown, 200th Conference of the Two-Year College Chemistry Consortium, New Orleans, LA, April **2013**.

"NSF Division of Undergraduate Education: Strategies for Successful Proposals and Projects," J.J. Grabowski and D.R. Brown, Pittcon Conference, Philadelphia, PA, March **2013**.

"Project iLASER: Inspiring Future Problem-Solvers," D.R. Brown, in Nano for Everyone: Expanding your Reach Through Partnerships, NISE Network Network-Wide Meeting, Cambridge, MA, December **2012**.

"Programs in the NSF Division of Undergraduate Education (DUE) that Support Chemistry Education," D.R. Brown, 199th Conference of the Two-Year College Chemistry Consortium, Yuma, AZ, November **2012**.

"Discussion of Critical Elements of Competitive NSF Grant Proposals Submitted to the Division of Undergraduate Education (DUE)," D.R. Brown, 199th Conference of the Two-Year College Chemistry Consortium, Yuma, AZ, November **2012**.

"Chemistry within the NSF's Division of Undergraduate Education," D.R. Brown, J.J. Grabowski, and P.A. Brown, 244th ACS National Meeting, Philadelphia, PA, August **2012**.

"Project iLASER: A Science Outreach Endeavor to Increase Public Awareness of Issues in Sustainable Energy," D.R. Brown, 22nd Biennial Conference on Chemical Education, Penn State University, University Park, PA, July **2012**.

"Chemistry Collaborations, Workshops and Communities of Scholars (cCWCS): Some Perspectives of a Workshop Participant-Turned-Presenter," D.R. Brown, 243rd ACS National Meeting, San Diego, CA, March **2012**.

"Project iLASER: Celebrating IYC 2011 and Communicating CCI Solar to Nontraditional Audiences," D.R. Brown, Center for Chemical Innovation: Solar Fuels Annual Retreat, Huntington Beach, CA January **2012**.

"Increasing Participation of U.S. Science and Engineering Students in Undergraduate Research," D.R. Brown, 46th Mexican Congress of Chemistry and 30th National Congress of Chemical Education, Querétaro, Mexico, September **2011**.

"Mapping Undergraduate Research Activities with Subject Content in Lower-Division Science and Mathematics Courses," D.R. Brown, 242nd ACS National Meeting, Denver, CO, August **2011**.

"Sharing Best Practices in Business and Industry Partnerships," D.R. Brown, J. Fitzpatrick and W.G. Hioki, Broadening Impact: NSF-Funded Projects at Two-Year Colleges Conference, Washington, DC, June **2011**.

"Bridging Small Business Innovation and Community College Research Teams," D.R. Brown, 21st Biennial Conference on Chemical Education, Denton TX, August **2010**.

"Economic Changes in the Chemistry-Based Industry in San Diego and their Impact on Technician Education at Southwestern College," D.R. Brown and W. Wang, 21st Biennial Conference on Chemical Education, Denton TX, August **2010**.

"Research Partnerships between Two-year Colleges and Industry: National Science Foundation SBIR/STTR Phase I/II program," D.R. Brown, 239th ACS National Meeting, San Francisco, CA, March **2010**.

"Two Years of ChemEd Bridges: A Retrospective and a Look to the Future," D.R. Brown and T.B. Higgins, 186th Conference of the Two-Year College Chemistry Consortium, Raymond, MS, November **2009**.

"The Impact of CWCS Workshops on the Transformation of a Chemistry Curriculum," D.R. Brown, 20th Biennial Conference on Chemical Education, Bloomington, IN, July **2008**.

"Research Partnerships between Two-Year Colleges and Small Business Enterprises," D.R. Brown, 235th ACS National Meeting, New Orleans, LA, April **2008**.

"Institutionalizing Undergraduate Research," D.R. Brown and M.K. Boyd, 180th Conference of the Two-Year College Chemistry Consortium, Baton Rouge, LA, April **2008**.

"Engaging Community College Students in Authentic Undergraduate Research," K. McConnaughay, T. Dowd, D.R. Brown, and J. Wesemann, 94th Annual meeting of the Association of American Colleges and Universities, Washington, DC, January **2008**.

"Undergraduate Research – Discovering the Role of Community Colleges," N. Hensel, J. Wesemann, D.R. Brown and M. Alingog, NSF ATE PI Conference, Washington, DC, Oct. **2007**.

"Engaging Community College Students in Authentic Undergraduate Research," T.B. Higgins, D.R. Brown, and K.D. McConnaughay, Association of American Colleges and Universities: Network for Academic Renewal, Long Beach, CA, April **2007**.

"Creating a Research Environment for Students at a Community College," D.R. Brown, 176th Conference of the Two-Year College Chemistry Consortium, San Antonio, TX, November **2006**.

"Involving Students in Research Activities at Southwestern College," D.R. Brown, 172nd Conference of the Two-Year College Chemistry Consortium, Palatine, IL, November **2005**.

"National Science Foundation Opportunities for Technician Education: The Advanced Technological Education (ATE) Program," D.R. Brown, Annual Conference of the National Association for Workforce Improvement, San Diego, CA, April **2005**.

"Chemical Research Undertaken at a Community College," D.R. Brown and T.J. Sucheck 170th Conference of the Two-Year College Chemistry Consortium, San Marcos, CA, March **2005**.

"Creating a New Program in Chemical Technology at Southwestern College," D.R. Brown and T.J. Sucheck, 56th ACS Southeast Regional Meeting, Raleigh, NC, November **2004**.

"Establishing a Program in Chemical Technology at Southwestern College," D.R. Brown and T.J. Sucheck, 166th Conference of the Two-Year College Chemistry Consortium, Irvine, CA, March **2004**.

"Undergraduate Research at a Community College," D.R. Brown and T.J. Sucheck, 157th Conference of the Two-Year College Chemistry Consortium, Las Vegas, NV, November **2001**.

"Current Instrumentation in the Chemistry Laboratory," D.R. Brown, 155th Conference of the Two-Year College Chemistry Consortium, San Diego, CA, April **2001**.

SELECTED SYMPOSIA ORGANIZED

Organized symposium: "ChemEd Bridges: A Retrospective on its Impact," 21st Biennial Conference on Chemical Education, Denton, TX, August **2010**.

Organized symposium: "Improving Chemical Education through Undergraduate Research and New Teaching Methods," 239th ACS National Meeting, San Francisco, CA, March **2010**.

Organized and Presided over symposium: "Undergraduate Research at Two-Year Colleges," 235th ACS National Meeting, New Orleans, LA, April **2008**.

Organized and Presided over symposium: "Minorities in Science: Strategies for Success," ACS Western Regional Meeting, San Diego, CA, October **2007**.

SELECTED WORKSHOPS PRESENTED

Facilitated NSF-funded workshop at Rice University: "Capacity Building Workshop for NSF S-STEM Proposals," Houston, TX, February **2017**.

"NSF Support for Innovation in Undergraduate STEM Education and Workforce Development," Las Positas College, Livermore, CA, May **2015**.

"NSF Support for Innovation in Undergraduate STEM Education," UC San Diego, La Jolla, CA, April **2015**.

"Preparing High-Quality NSF Proposals," D.R. Brown and D. Rickey, Southern Illinois Collegiate Common Market, Edwardsville, IL and (via webcast) Carbondale, IL, October **2014**.

"Preparing High-Quality Proposals for NSF Division of Undergraduate Education Programs," D. Rickey, N. Bennett and D.R. Brown, Workshop at 23rd Biennial Conference on Chemical Education, Grand Valley State University, Allendale, MI, August **2014**.

"Strategies for Preparing and Submitting Competitive Proposals to the National Science Foundation," D.R. Brown, J. Krupczak and V.C. Carter, High Impact Technology Exchange Conference, Chicago, IL, July **2014**.

Presented professional development workshops for Science Educators at the Reuben H. Fleet Science Center, San Diego, CA, June **2012** and February **2013**.

"Materials Science and Nanotechnology," Science, Engineering and Mathematics Lecture Series, Montgomery College, Rockville, MD, February **2012**.

Facilitated Council on Undergraduate Research workshop: "Developing Undergraduate Research at Community Colleges: Tapping the Potential of All Students," Irvine, CA, February **2012**.

Directed workshop "Materials Science and Nanotechnology," NSF-funded Chemistry Collaborations, Workshops and Communities of Scholars (cCWCS), Chula Vista, CA, July **2011**.

"A Mini-Workshop on Materials Science and Nanotechnology," D.R. Brown and J. Um, 191st Conference of the Two-Year College Chemistry Consortium, Walnut, CA, March **2011**.

Facilitated Council on Undergraduate Research workshop: "Institutionalizing Undergraduate Research," Northridge, CA, February **2008**.

CONFERENCE PROCEEDINGS – POSTER PRESENTATIONS

"Project iLASER: Celebrating the Joy of STEM Along the U.S-Mexico Border," D.R. Brown, Annual Meeting of the American Association for the Advancement of Science, Washington, DC, February **2016**.

"Project iLASER: Inspiring the Next Generation of Problem-solvers to Confront Challenges in Sustainable Energy," D.R. Brown, 43rd IUPAC World Chemistry Congress, San Juan, Puerto Rico, August **2011**.

"Capacity Building in American Higher Education: Training and Mentoring of Two-Year College STEM Educators," D.R. Brown and J.D. Dwyer, 43rd IUPAC World Chemistry Congress, San Juan, Puerto Rico, August **2011**.

"Workshops and Mentoring Projects for Two-Year College STEM Educators to Prepare CCLI/TUES Proposals," D.R. Brown and J.D. Dwyer, Broadening Impact: NSF-Funded Projects at Two-Year Colleges Conference, Washington, DC, June **2011**.

"Characterization of a Hydrophilic Polyurethane Film and the Electrochemical Production of an Antimony Electrode for a Miniature pH Sensor," A. Miramontes, S. Lugo, J. Schipper, and D.R. Brown, 241st ACS National Meeting, Anaheim, CA, March **2011**.

"Training and Mentoring of Two-Year College STEM Educators to Prepare CCLI/TUES Proposals," J.D. Dwyer and D.R. Brown, NSF TUES Principal Investigators Conference, Washington, DC, January **2011**.

"Electrochemical Production of an Antimony Electrode for a Miniature pH Sensor," S. Lugo, M. Gianino, J. Stokes, D.R. Brown, and J. Schipper, 239th ACS National Meeting, San Francisco, CA, March **2010**.

"Characterization of a Hydrophilic Polyurethane Film," M. Gianino, D.R. Brown and J. Schipper, 239th ACS National Meeting, San Francisco, CA, March **2010**.

"Electrochemical Production of an Antimony Electrode for a pH Sensor," M. Gianino, J. Stokes, A.P. Lopez, D.R. Brown, and J. Schipper, 186th Conference of the Two-Year College Chemistry Consortium, Raymond, MS, November **2009**.

"Mid-Infrared Characterization of Volume Holographic Gratings and Nanofabrication of Optical Structures," M. Alingog, H. Mendoza Solano, D.R. Brown, G.J. Steckman, and C. Moser, Council on Undergraduate Research Posters on the Hill, Washington, DC, April **2008**.

"Curve-fitting and Deconvolution Methods Applied to Spectroscopic Measurements in Simple Two-state Chemical Systems: Acid-Base Indicators," C. dela Cruz, H. Mendoza Solano, and D.R. Brown, 235th ACS National Meeting, New Orleans, LA, April **2008**.

"Mid-Infrared Characterization of Volume Holographic Gratings and Nanofabrication of Optical Structures," M. Alingog, H. Mendoza Solano, D.R. Brown, G.J. Steckman, and C. Moser, 235th ACS National Meeting, New Orleans, LA, April **2008**.

"Equipping the 2015 Chemical Technology Workforce: An ACS-Sponsored Initiative at Southwestern College," D.R. Brown, ACS Western Regional Meeting, San Diego, CA, Oct. **2007**.

"Bridging Community College Chemistry Faculty into the National Educational Community," M.K. Boyd, D.R. Brown, T. Higgins, and H. Ungar, ACS Western Regional Meeting, San Diego, CA, October **2007**.

"Curve Fitting and Deconvolution Methods: Applications to Spectroscopic Measurements in Acid-Base Indicator Systems," C. dela Cruz, H. Mendoza Solano, and D.R. Brown, ACS Western Regional Meeting, San Diego, CA, October **2007**.

"Characterization of Glass Volume Holographic Gratings in the Mid-Infrared Range with Attenuated Total Reflectance Measurements," M. Alingog, H. Mendoza Solano, D.R. Brown, G.J. Steckman, and C. Moser, ACS Western Regional Meeting, San Diego, CA, October **2007**.

"Analysis of Infrared Spectra of Ethanol and Diethyl Ether Trapped in Yttria Powders Doped with Rare Earth Ions," E. López, J. Corral, R. Vázquez, O. Rebolledo, O.A. Graeve, and D.R. Brown, 229th ACS National Meeting, San Diego, CA, March **2005**.

"Establishing a Program in Chemical Technology at Southwestern College," D.R. Brown and T.J. Sucheck, 39th ACS Western Regional Meeting, Sacramento, CA, October **2004**.

"Establishing a Program in Chemical Technology at Southwestern College: A Progress Report," D.R. Brown and T.J. Sucheck, NSF ATE PI Conference, Washington, DC, October **2003**.

"Establishing a Program in Chemical Technology at Southwestern College," D.R. Brown and T.J. Sucheck, NSF ATE PI Conference, Washington, DC, October **2002**.

"NMR Investigation of a DNA Hairpin-Actinomycin D Complex," D.R. Brown, M. Kurz, V.L. Hsu, and D.R. Kearns, 33rd Experimental NMR Spectroscopy Conference, Asilomar CA, **1992**.

"Electron Magnetic Resonance Studies of Argonne Sample Bank Coals," D.R. Brown, H.C. Crookham, R.L. Belford, and R.B. Clarkson, invited paper, International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, December **1989**.

"Structural Information from Multifrequency ESEEM," H.C. Crookham, D.R. Brown, R.B. Clarkson, and R.L. Belford, 12th International EPR Symposium, Denver, CO, August **1989**.

"Magnetic and Molecular Structure in Coal," R.B. Clarkson, R.L. Belford, D.R. Brown, K.J. Mattson, M.J. Nilges, W. Wang, and D.J. Youn, NMR Symposium, 31st Rocky Mountain Conference on Applied Spectroscopy, Denver, CO, August **1989**.

"A Novel S-Band Electron Spin Echo Spectrometer," D.R. Brown, H.C. Crookham, M.D. Timken, R.B. Clarkson, and R.L. Belford, 11th International EPR Symposium, Denver, CO, August **1988**.

"Enhancement of the Nuclear Modulation in the Electron Spin Echo Envelope at Low Magnetic Fields," H.C. Crookham, D.R. Brown, M.D. Timken, R.B. Clarkson, and R.L. Belford, 11th International EPR Symposium, Denver, CO, August **1988**.

SELECTED PROFESSIONAL DEVELOPMENT ACTIVITIES

Participant in workshop: "Case Studies in Undergraduate Chemistry Courses," via the NSF-funded Chemistry Collaborations, Workshops and Communities of Scholars (cCWCS), Riverside, CA, June **2016**.

Participant in workshop: "Materials Science and Nanotechnology," at the NSF-funded Center for Workshops in the Chemical Sciences (CWCS), Beloit, WI, July **2004**.

Participant in workshop: "Environmental Chemistry," at the NSF-funded Center for Workshops in the Chemical Sciences (CWCS), Atlanta, GA, June **2003**.

Participant in workshop: "Molecular Genetics and Protein Engineering," NSF-funded Center for Workshops in the Chemical Sciences (CWCS), Atlanta, GA, August **2002**.

Participant in workshop: "Nuclear Magnetic Resonance Spectroscopy," at the NSF-funded Center for Workshops in the Chemical Sciences (CWCS), Pullman, WA, July **2001**.

PROJECT EVALUATION ACTIVITIES

NSF CCLI Project "Lighting Up the Next Generation of Technological Problem-Solvers," S. Donnelly, PI, **2008-2011** (Award DUE 0736746).

NSF ATE Project "Geospatial Technology (GST) Program at Southwestern College," K. Yanow, PI, **2008-2009** (Award DUE 0802408).

NSF ATE Project "Geographic Information Systems (GIS) Science Technology Program at Southwestern College," K. Yanow, PI, **2005-2008** (Award DUE 0501247).

SOUTHWESTERN COLLEGE CLC BLOCK GRANTS (Competitive Internal Grants)

Grant to add a Temperature Controller to Ultraviolet-Visible Spectrometer, \$15,192, **2002**.

Grant to upgrade computer system for NMR Spectrometer, \$9,000, **2001**.

Grant for purchase of an Atomic Absorption Spectrometer, \$18,889, **2000**.

Grant used as matching funds for NSF ILI grant, \$73,427, **1997**.

Grant to purchase 15 analytical balances, \$29,011, **1997**.

SERVICE TO SOUTHWESTERN COLLEGE

Charter member of Southwestern College Research and Training Institute.

Committee Co-Chair for Standard 2, Institutional Integrity, of the 2003 SWC Self-Study for Accreditation by the Western Association of Schools and Colleges.

Three faculty search committees and chaired two tenure committees.

Southwestern College Education Association – Treasurer, 2005-2012

Advisor to the Southwestern College Student Chapter of the American Chemical Society.

PROFESSIONAL AFFILIATIONS

American Chemical Society - Division of Chemical Education and San Diego Local Section

Two-Year College Chemistry Consortium

American Association for the Advancement of Science

Sigma Xi

Council on Undergraduate Research

National Education Association/California Teachers Association