

Brett K. Simpson
Department of Chemistry and Physics
Coastal Carolina University
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EDUCATION

IOWA STATE UNIVERSITY

Ph.D. in Analytical Chemistry, August, 2002

Dissertation: Development of novel electrode materials for the electrocatalysis of oxygen-transfer and hydrogen-transfer reactions.

AUGUSTANA COLLEGE

B.A. in Chemistry, ACS Certified, May, 1996

Magna Cum Laude

ACADEMIC EXPERIENCE

Associate Professor

Department of Chemistry and Physics

Coastal Carolina University

Fall 2008 - Present

Director of Core Curriculum

Coastal Carolina University

Spring 2019 - Present

Department Chair

Department of Chemistry and Physics

Coastal Carolina University

Fall 2011 – Summer 2014

Assistant Professor

Department of Chemistry and Physics

Coastal Carolina University

Fall 2002 – Summer 2008

General Chemistry Lecturer

Department of Chemistry

Iowa State University

Fall 1999

RESEARCH EXPERIENCE

COASTAL CAROLINA UNIVERSITY

Associate Professor, 2002-present

- Developed novel electrodes for use in electrochemical incineration of and analytical detection of various organic materials
- Studied various methods for production of pure metal and binary metal alloy films
- Supervised numerous students in research projects

IOWA STATE UNIVERSITY, AMES, IA

Graduate Research Assistant, 1996-2002

Advisor: Dr. Dennis C. Johnson

- Developed electrochemical sensors for various compounds
- Utilized techniques such as cyclic voltammetry, chronoamperometry, rotated ring-disk voltammetry, etc.
- Research group MSDS Officer, 1996-1999, 2000-2002
- Chemical Hygiene & Safety Officer, 1999-2002
- Ames Lab Environmental Safety and Health Rep., 1999-2002

AUGUSTANA COLLEGE, SIOUX FALLS, SD

Summer Research, 1995

Advisor: Dr. Duane Weissbauer

- Developed a polymer to allow for electrochemistry in nonaqueous solution without supporting electrolyte
- Developed a computer interface program for use in experiments

HONORS, AWARDS AND AFFILIATIONS

Advisor for the Coastal Carolina University Chemistry Club, 2003-2010

American Chemical Society, 1993-present

The Electrochemical Society 1997-present

Noble Hines Fellowship, ISU Chemistry Department, 1996

Haugo Memorial Scholarship, 1993-1996

Augustana ACS Secretary, 1996

PUBLICATIONS

*Project-based integrated lecture and laboratory quantitative analysis course; Budner, Drew; **Simpson, Brett K.**; Journal of Chemical Education (2018) 95 (9), 1533-1540*

Structural organization of a {ruthenium[tris(bipyridyl)]}2+ complex by strong π - π stacking of a tethered 1,8-naphthalimide synthon: Impact on electrochemical and

spectral properties; Reger, Daniel L.; Derek Elgin, J.; Pellechia, Perry J.; Smith, Mark D.; **Simpson, Brett K.**; Polyhedron (2009), 28(8), 1469-1474.

Electrocatalysis of Cobalt and Nickel Embedded Nafion Films, Kidd, Bryce E.; **Simpson, Brett K.**; Abstracts, 59th Southeast Regional Meeting of the American Chemical Society, Greenville, SC, United States, October 24-27 (2007), GEN-664

Quantitative Analysis Activities/Worksheets, **Simpson, B. K.**, Multimedia Educational Resources for Learning and Online Teaching (MERLOT) Website (www.merlot.org), 2006.

Electrochemical Oxidation of Alcohols at Cobalt/Iron Doped Polymer Films, Asbury-Goggins, M. and **Simpson, B. K.**, Abstracts, 57th Southeast/61st Southwest Joint Regional Meeting of the American Chemical Society, Memphis, TN, United States, November 1-4: NOV04-582, 2005

Electrocatalysis of nitrate reduction at copper-nickel alloy electrodes in acidic media, **Simpson, B. K.** and Johnson, D. C., Electroanalysis, 16 (7): 532-538, 2004

Effect of chemical etching and aging in boiling water on the corrosion resistance of Nitinol wires with black oxide resulting from manufacturing process, Shabalovskaya, S., Rondelli G., Anderegg, J., **Simpson B.**, Budko, S., Journal of Biomedical Materials Research, Part B: Applied Biomaterials, 66B(1): 331-340, 2003.

Enhancement of anodic response for DMSO at ruthenium oxide film electrodes as a result of doping with iron(III), **Simpson, B. K.** and Johnson, D. C., Electroanalysis, 15 (2): 97-102, 2003

Development of novel electrode materials for the electrocatalysis of oxygen-transfer and hydrogen-transfer reactions, **Simpson, B. K.**, PhD Dissertation, Iowa State University, 2002

PRESENTATIONS

Integrating common curriculum components across multiple first semester general chemistry sections, **Simpson, Brett**, BCCE - Biennial Conference on Chemical Education (August 2016)

Incorporating ALEKS prerequisite into first semester general chemistry, **Simpson, Brett**, BCCE - Biennial Conference on Chemical Education (August 2016)

Project based integrated lecture and laboratory quantitative analysis course, Budner, Drew; **Simpson, Brett**, BCCE - Biennial Conference on Chemical Education (August 2016)

Application of HPLC Monolithic Columns for Concentration, Separation, and Screening of Viruses in Environmental Waters, Thurn, Nick; Richardon, Paul; **Simpson, Brett** Big Surs Conference at Campbell University (April 2015).

Application of HPLC Monolithic Columns for Concentration, Separation, and Screening of Viruses in Environmental Waters, Thurn, Nick; Richardon, Paul; **Simpson, Brett** Seventh Annual Undergraduate Research Competition at Coastal Carolina University (April 2015)

Assessing Scientific Communication Skills in Chemistry, **Simpson, Brett K.**, Assessment Day, Coastal Carolina University (September 2012)

Electrocatalytic Properties of Cobalt and Nickel Embedded Nafion Films, Kidd, Bryce E.; **Simpson, Brett K.**; Pittsburgh Conference, New Orleans, LA, (March 2008)

Electrocatalysis of Cobalt and Nickel Embedded Nafion Films, Kidd, Bryce E.; **Simpson, Brett K.**; SERMACS, Greenville, SC, (October 2007)

A Study of How the Use of Personal Response System Affects Student Learning in a General Chemistry Course, D. Slusher, J. Fuller and **B. Simpson**, Biennial Conference on Chemical Education, Purdue University, IN, (August 2006)

Electrochemical Oxidation of Alcohols at Mixed Metal Polymer Films, S. Michelle Rogers, Charlene Ricciardi, and **Dr. Brett K. Simpson**, Pittsburgh Conference, Orlando, FL 2006.

Electrochemical Properties of Cobalt/Iron Doped Polymer Films, Michael Asbury-Goggins and **Dr. Brett K. Simpson**, SERMACS, Memphis, TN, 2005.

From Sherlock Holmes to CSI: The World of Forensic Science, **Brett K. Simpson** and Lance Holt. Celebration of Inquiry, Coastal Carolina University, 2005

Nitrate Reduction at Copper-Nickel Alloy Electrodes, **Brett K. Simpson** and Dennis C. Johnson, Pittsburgh Conference, New Orleans, LA 2001.

Electrocatalytic Properties of Iron (III)-Doped Ruthenium Oxide Films, **Brett K. Simpson** and Dennis C. Johnson, Pittsburgh Conference, New Orleans, LA 2000.

Detection of Sulfur Compounds at Iron (III)-Doped Manganese Dioxide Films, **Brett K. Simpson** and Dennis C. Johnson, Pittsburgh Conference, Orlando, FL 1999.

Detection of Sulfur Compounds at Bismuth (V)- Doped Manganese Dioxide Film Electrodes, **Brett K. Simpson** and Dennis C. Johnson, Pittsburgh Conference, New Orleans, LA 1998.

GRANTS

A Modular Level Based Completion Approach to General Chemistry Hybrid Course, Simpson, Brett; Coastal Carolina University COOL Grant \$2200, funded 2021

Development of an Online Hybrid General Chemistry II Course, Simpson, Brett; Budner, Drew; McWilliams, Amber, Coastal Carolina University COOL Grant \$2250, funded 2018

Development of an Online Hybrid General Chemistry Laboratory II Course, Simpson, Brett; Budner, Drew; McWilliams, Amber, Coastal Carolina University COOL Grant \$2250 funded, 2018

Impact of a No Exam Implementation on Student Success in a General Chemistry Course; Simpson, Brett; CeTEAL Signature Pedagogy Grant \$3000 funded, 2018

Development of an Online Hybrid General Chemistry Course, Simpson, Brett; Budner, Drew; McWilliams, Amber, Coastal Carolina University COOL Grant \$2250, funded 2017

Development of an Online Hybrid General Chemistry Laboratory Course, Simpson, Brett; Budner, Drew; McWilliams, Amber, Coastal Carolina University COOL Grant \$2250 funded, 2017

Assessing scientific communication skills in Chemistry, Coastal Carolina University Assessment Grant, \$6375, funded, Spring 2010.

Purchase of a Gas Chromatograph with Cyberinfrastructure Capabilities, NSF CHE Chemical Instrumentation Proposal, Co-PI, \$79,512. not funded, 2006.

Advanced Study in Physical Science, Co-PI, \$20,677 funded, Spring 2006.

Electrochemical Studies of Binary Metal Doped Nafion® Films, Coastal Carolina University Professional Enhancement Grant, PI, \$3930 funded, 2005-2006.

A Study of How the Use of Personal Response System Affects Student Learning in a General Chemistry Course, Coastal Carolina University Scholarship of Teaching and Learning Grant, Co-PI, \$5300 funded, Fall 2005.

Acquisition of a Varian GC-MS/MS System, National Science Foundation MRI Grant, Co-PI, \$211,747 not funded, 2005.

Development of Novel Electrode Materials for Use in Electrochemical Incineration of Organic Pollutants in Ground Water, Coastal Carolina University Academic Enhancement Grant, PI, \$3300 funded, 2002-2003.