

RUKMA BASNAYAKE

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Department of Chemistry
Sam Houston State University
Huntsville, TX 77341

Education

Ph.D. in Chemistry

Department of Chemistry and Biochemistry
Texas Tech University, Lubbock, TX (December 2006)
Concentration: Analytical Chemistry

Master of Science in Chemistry

Department of Chemistry
Sam Houston State University, Huntsville, TX (December 2001)
Concentration: Environmental and Analytical Chemistry

Bachelor of Science in Chemistry (Special)

Department of Chemistry
University of Kelaniya, Kelaniya, Sri Lanka (October 1998)

Research Interests

Electrochemistry

- Study of kinetics and surface properties of nanometer scale catalyst materials for fuel cell applications

Infrared Spectroscopy

- Study of structure and performance of proton conductive membrane materials (Nafion)

Wet Chemistry

- Quantitative and qualitative determination of environmentally important chemical species including selenium and tellurium

Honors and Awards

- Dean's Scholarship for outstanding graduate students, Sam Houston State University (2001, 2000)
- Gold medal: Outstanding undergraduate chemistry student of the year, University of Kelaniya, Sri Lanka (1998)
- Award for the best performance at "Advanced Level Examination", Rathnavali College, Sri Lanka (1991)

Teaching Experience

Responsibilities have included developing syllabi, conducting lectures, supervising laboratory experiments, and running help/discussion sessions

Department of Chemistry, Sam Houston State University

2010-Spring General Chemistry I
2009- Fall Inorganic and Environmental Chemistry
2009-Spring Quantitative Analysis
2008-Fall Quantitative Analysis
2008-Fall Inorganic and Environmental Chemistry
2008-Spring Inorganic and Environmental Chemistry
2008-Spring General Chemistry I
2007-Fall Inorganic and Environmental Chemistry
2007-Fall Organic and Biochemistry Laboratory Course

Department of Chemistry and Biochemistry, Texas Tech University

General Chemistry (CHEM 1108)
Analytical Chemistry (CHEM 3251)
Analytical Chemistry (CHEM 3141)

Professional Experience

Lecturer, Sam Houston State University, August 2007-Present

Chemistry inventory and safety coordinator, Sam Houston State University, August 2007-Present

Teaching Assistant/Research Assistant, Texas Tech University, January 2002-August 2006

Teaching Assistant, Sam Houston State University, August 1999-August 2001

Publications

- Basnayake, R., Weaver, W., Korzeniewski, C. Hydration of free standing Nafion membrane in proton and sodium ion exchanged forms probed by infrared spectroscopy *Electrochim Acta* **2007**, 1259-1264, 53..
- Islam, M., Basnayake, R., Korzeniewski, C. A study of formaldehyde formation during methanol oxidation over PtRu bulk alloys and nanometer scale catalyst *J. Electroanal. Chem.* **2007**, 599, 31.
- Basnayake, R., Peterson, G., Cassadonte Jr., D., Korzeniewski, C. FTIR Study of water in freestanding Nafion 112 Membranes *J. Phys. Chem. B* **2006**, 110, 23938.

- Basnayake R., Li, Z., Lakshmi, S., Zhou, W., Smotkin, E. S., Cassadonte Jr., D., Korzeniewski, C., PtRu Nanoparticle Electrocatalyst with Bulk Alloy Properties Prepared Through a Sonochemical Method, *Langmuir* **2006**, 22, 10446.
- Korzeniewski, C., Snow, D., Basnayake, R. Transmission IR Spectroscopy as a Probe of Nafion Film Structure: Identification and Resolution of Complex Spectral Regions Fundamental to Understanding Hydration Effects *Appl. Spectroscopy* **2006**, 60 (6).
- Korzeniewski, C., Basnayake, R., Vijayaraghavan, G., Li, Z., Xu, S., Cassadonte Jr., D. Methanol electrochemical oxidation at nanometer-scale PtRu materials, *Surf. Sci.* **2004**, 100.
- Basnayake, R., Bius, J. H., Akpolat, O.S., Chasteen, T. G., Production of dimethyl telluride and elemental tellurium by bacteria amended with tellurite or tellurate, *Appl. Organometal. Chem.* **2001**, 15, 499-510.

Presentations and Posters

- Korzeniewski, C., Basnayake, R., Adams, E. *Responses of hydrophobic and hydrophilic groups in Nafion differentiated by least squares modeling of infrared spectra recorded during membrane hydration* 213th ECS meeting, Phoenix, AZ, May 2008.
- Carol Korzeniewski, Rukma Basnayake and Evan Adams, *Infrared spectroscopy as a probe of interfacial water in Nafion membrane materials* 23rd ACS Southwest Regional meeting, Texas Tech University, Lubbock, TX, Nov. 2007.
- Korzeniewski, C., Basnayake, R., Snow, D. *Infrared spectroscopy as a probe for hydration in fuel cell membrane materials*, Pittcon Conference, Orlando, FL, March 2006.
- Basnayake, R., Snow, D., Peterson, G., Korzeniewski, C. *Structure and hydration in fuel cell membrane materials probed by infrared spectroscopy*, Gordon Research Conference, Buelton, CA, Feb. 2006.
- Korzeniewski, C., Basnayake, R., Snow, D. *Infrared studies of membrane materials and electrochemistry of sonochemically prepared catalyst*, Fuel Cells Gordon Research Conference, Smithfield, RI, July 2005.
- Korzeniewski, C., Vijayaraghavan, G., Basnayake, R., Snow, D. *Infrared spectroscopy as a probe of CH₃OH surface chemistry on electrodes*, The 227th ACS National Meeting, Anaheim, CA, March 2004.
- Basnayake, R. *Analysis of protein secondary structure by attenuated total reflection Fourier transformation infrared spectroscopy*, Graduate seminar, Texas Tech University, May 2004.
- Basnayake, R. *Trace element analysis by inductively coupled plasma mass spectrometry*, Graduate seminar, Texas Tech University, Oct 2003.

- Basnayake, R., Chasteen, T.G. *Detoxification of toxic tellurium species by bacterium Pseudomonas fluorescens K27*, 57th ACS Southwest Regional meeting, San Antonio, Texas Oct. 2001.
- Basnayake, R. *Inorganic selenium and tellurium speciation in aqueous medium of biological samples*, Master dissertation presentation, Sam Houston State University, Aug. 2001.
- Basnayake, R. *Hydride generation atomic absorption spectrometry*, Graduate seminar, Sam Houston State University, April 2000.
- Basnayake, R. *Extraction and partial purification of arginine decarboxylase from Colletotrichum gloeosporioides*, Undergraduate presentation, University of Kelaniya, Sep 1998.