

## **Education**

### **Ph.D. in Chemistry**

Department of Chemistry and Biochemistry

Texas Tech University, Lubbock, TX (December 2006)

Concentration: Analytical Chemistry (Dissertation Title: "Strategies for probing Pt-based electrocatalyst and ionically conductive membrane materials: voltammetry of Pt, PtRu and PtV nanoparticles and infrared studied of membrane hydration")

### **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, Sri Lanka (October 1998)

## **Professional Experience**

### ➤ **Lecturer (August 2007 – present)**

Sam Houston State University (Huntsville, TX)

Conduct lectures with full responsibility, supervise laboratory experiments, and run help/discussion/tutor sessions

- Quantitative Analysis (CHEM 2401)
- General Chemistry II Lab (CHEM 1412)
- General Chemistry I Lecture (CHEM 1411)
- General Chemistry I Lab (CHEM 1411)
- Inorganic and Environmental Chemistry Lecture (CHEM 1406)
- Organic and Biochemistry Lab (CHEM 1407)
- Oversee teaching Labs (CHEM 1406, 1407, 1411, 1412, 2123, 2125, 3438, 4448)

### ➤ **Chemistry inventory and safety coordinator (August 2006 - present)**

Sam Houston State University (Huntsville, TX)

- Develop chemical hygiene plans
- Focus on safety rules and procedures
- Maintain biohazard safety standards, and ensure proper handling of potentially hazardous chemical and biological agents
- Supervise labs, teaching assistants, and stock-room employees
- Prepare samples for analysis and perform a variety of other laboratory operations
- Maintain chemical inventories
- Order chemicals, glassware and instruments for labs

### ➤ **Teaching Assistant**

Texas Tech University (Lubbock, TX) (January 2002 – August 2006)

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

Analytical Chemistry (CHEM 3141)

Sam Houston State University (Huntsville, TX) (January 2002 – August 2006)

Inorganic Chemistry (CHM 1106), General Chemistry I (CHM 1111),  
General Chemistry II (CHM 1112)

University of Kelaniya (Sri Lanka) (October 1998 – December 1998)  
Analytical Chemistry, Biochemistry, and Organic Chemistry Laboratories

- **Assistant Lecturer** (January 1999 - July 1999)  
University of Kelaniya (Sri Lanka)  
Teaching courses in Analytical and General Chemistry

## 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

## 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* 213<sup>th</sup> 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* 23<sup>rd</sup> 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 CH<sub>3</sub>OH surface chemistry on electrodes*, The 227<sup>th</sup> 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*, 57<sup>th</sup> 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.

## 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)