

SAJANI A. BASNAYAKE, PhD

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OVERVIEW

Compassionate chemistry instructor with proven record of providing exceptional learning experiences to undergraduate students.

EDUCATION

- **PhD, Chemistry, University of Texas at Dallas**, Richardson, TX, GPA 4.00, **August 2015**
Advisor: **Dr. Kenneth J. Balkus Jr.**
- **BSc (Honors), Chemistry**, University of Peradeniya, Sri Lanka, GPA 3.64, **June 2008**

HIGHLIGHTS

- **Over six years of experience** in effectively **teaching chemistry** for undergraduate students from diverse populations.
- Core focus: **General Chemistry**. Additional teaching experience in the areas of **Inorganic, Physical and Organic Chemistry**
- Profound knowledge of chemical structure, property and composition of substances
- Hands on experience in the analytical software: **Origin Pro, ChemBioOffice, CrystalMaker, Microsoft Office, Adobe**
- Strong communication, problem solving and organizing skills with ability work in a team environment or work independently and always adapt to new technologies easily.
- Expertise in **synthesis and characterization of inorganic – organic hybrid materials and their applications**
- Working expertise in **analytical techniques, instrumentation handling and troubleshooting**: in **PXRD, FT-IR, ATR-FTIR, SEM, EDX**, Gas adsorption analysis (**Autosorb 1C**), **TGA**), Raman spectroscopy, **UV-vis**

PROFESSIONAL EXPERIENCE

General Chemistry Instructor (2022 - present) Arizona State University

- Teaching **General Chemistry active learning recitations**
- Leading and managing General Chemistry Recitations
- Contribution to curriculum development by preparing work sheets for Discussion Sessions and Exam Reviews
- Managing the Gradebook and grading recitation assignments
- Teaching **General and Elementary Organic Chemistry Laboratory courses**
- Managing lab TAs and the Canvas for General and Elementary Organic Chemistry Laboratory courses

Additional Teaching Experience (2015-2016) Varsity Tutors LLC

- Conducted online and in person tutoring for undergraduate and high school students in General, Inorganic and Physical chemistry

Graduate Research Assistant (2012 - 2015) University of Texas at Dallas

- **Synthesis, characterization and processing of inorganic – organic hybrid porous materials and their analysis for industrial applications**
Designed and synthesized novel **organic ligands** and constructed new porous **Metal Organic Frameworks (MOFs)**
Successfully applied new **carbonate containing zeolitic imidazolate frameworks (ZIFs)** for capture and storage of **carbon dioxide**
Analyzed and identified the causes of the **deterioration of zeolite type pigment materials in Ultramarine blue pigments** under acidic environment
Discovered new methods for **generation blue sulfur chromophores via H₂S splitting**
Invented methods for trapping **sulfur chromophores in a ZIF via linker exchange techniques and synthesized new pigment material**

Research Mentoring

2013-2015: Rawan Muhanna, B.S. in Chemistry

Winner of UT Dallas undergraduate research award fall 2014 and 2nd place at 47th Annual ACS DFW Meeting in Miniature undergraduate student presentations

2013: Mark Rudolph, B.S. in Chemistry

2013: Deepak Subramanian, Welch Summer Scholars program

2012: Priya Bhattacharjee, Welch Summer Scholars program

Graduate Teaching Assistant (2010-2012)

University of Texas at Dallas

CHEM1111 and 1112

General Chemistry lab I and II

CHEM2125

Organic Chemistry lab II

- Taught undergraduate laboratory courses, prepared laboratory experiments
- Graded student lab reports, assignments and exams

Chemistry Demonstrator/Instructor (2008-2010)

- **Open University of Sri Lanka** Conducted undergraduate laboratory classes and taught General, Inorganic and Physical chemistry courses
- **University of Peradeniya, Sri Lanka** Conducted undergraduate laboratory and tutorial classes in Chemistry

AWARDS

- 3rd place at 45th Annual ACS DFW Meeting in Miniature graduate student presentations

PUBLICATIONS

- Basnayake, S. A.; Su, J.; Zou, X.; Balkus Jr., K.J. "A Carbonate Based Zeolitic Imidazolate Framework for Highly Selective CO₂ Capture". *Inorganic Chemistry*, **2015**, 54 (4), pp 1816–1821.
- Basnayake S.A.; Tan, K.; Leonard, M.; Chabal, Y.; Balkus Jr., K.J. "Encapsulation of Red Sulfur Chromophores in a Zeolitic Imidazolate Framework (ZIF-8) via Solvent Assisted Linker Exchange". *Microporous and Mesoporous Materials*, **2016**, 219, pp 172-177.

SELECTED CONFERENCE PRESENTATIONS AND CONTRIBUTED ABSTRACTS

Basnayake, S.; Su, J.; Zou, X.; Balkus Jr., K.J. "Novel Zeolitic Imidazolate Framework (ZIF) for Selective CO₂ capture", **48th Annual ACS DFW Meeting in Miniature**, Fort worth, TX, Apr 2015. (Oral presentation)

Basnayake, S.; Rudolph, M.; Balkus Jr., K.J. "Two novel Zeolitic Imidazolate Frameworks (ZIFs) with high porosity, high thermal and chemical stability", **247th ACS National Meeting**, Dallas, TX, Mar 2014. (Poster presentation, **selected for Sci-Mix**)

Basnayake, S.; Balkus Jr., K.J. "Use of novel bridging imidazolate linkers to build novel zeolitic imidazolate frameworks", **2013 ACS Southwest Regional Meeting**, Waco, TX, Nov 2013. (Oral presentation)

Basnayake, S.; Balkus Jr., K.J. "Synthesis of a highly porous novel Metal Organic Framework using a novel linker", **245th ACS National Meeting**, New Orleans, LA, Apr 2013. (Poster presentation, **selected for Sci-Mix**)

Basnayake, S.; Balkus Jr., K.J. "Synthesis of novel Zeolitic Imidazolate Frameworks", **45th Annual ACS DFW Meeting in Miniature**, Irving, TX, Apr 2012. (Oral presentation)

PROFESSIONAL MEMBERSHIPS

American Chemical Society

2012-2016