Curriculum Vitae

Saravanan Ramasamy, Ph.D.
Assistant Professor
Department of Chemistry and Biochemistry
Angelo State University

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EDUCATION

Postdoctoral Fellow - Teaching and Research July 2015 – July 2017
University of Oklahoma, Norman, OK
Department of Chemistry and Biochemistry

Ph.D. in Organic Chemistry August 2009 - May 2015
University of Oklahoma, Norman, OK
Department of Chemistry and Biochemistry

Master of Science in Chemistry July 2006 - May 2008
SRMV CAS, Coimbatore, India

Bachelor of Science in Chemistry July 2003 - May 2006
PSG CAS, Coimbatore, India

TEACHING EXPERIENCES

Angelo State University, San Angelo, TX

Assistant Professor Fall 2017 – Present
Organic Chemistry I and II
- Teach lecture and laboratory of organic chemistry CHEM3451 and CHEM3452

University of Oklahoma, Norman, OK

Postdoctoral Fellow - Teaching Fall 2015 – Summer 2017
Organic Chemistry I and II – Biological Emphasis
- Lectured to a class of 250 students each semester
- Created syllabi, quizzes, online assignments, projects, and exams
- Used innovative teaching technologies like a digital whiteboard, iPad animation, interactive textbook, and iClicker
- Created lecture videos and posted them on the university media website

Instructor of Laboratory Course Spring 2014 – Fall 2014 (including summer term)
Organic Chemistry Laboratory – Biological Emphasis
- Lectured to a class of 275 junior and senior undergraduate students each semester
- Created lab and lecture syllabi, quizzes, assignments, and exams
- Prepared discussion questions and grading rubrics for students' lab reports for each experiment
- Developed and implemented "Teaching with iPad" technique
- Adopted iBook version of the lab manual (free for students) and contributed to its further development

Head Teaching Assistant Spring 2014 – Fall 2014 (including summer term)
Organic Chemistry Laboratory Courses – Major and non-major
- Assigned duties and make schedules for teaching assistants and proctors
- Supervised 11 organic lab sections each semester and ensured students' safety in the lab

- Supervised 12 teaching assistants, trained them on lab techniques and resolved workplace conflicts
- Organized weekly GTA meetings, made lesson plans and contributed to course reform and development
- Developed lab protocols and safety policies that became a standard for all lab courses in the department

Lecture Teaching Assistant Fall 2013 – Spring 2014
Organic Chemistry I and II – Honors and Regular Classes
- Assisted professors in lectures and created exams
- Led group discussions and helped students understand problems

Laboratory Teaching Assistant Fall 2009 - Fall 2013
Organic Chemistry and General Chemistry Laboratories
- Taught organic major and non-major labs for four years (14 sections)
- Taught general chemistry I and II labs for two semesters

RESEARCH EXPERIENCE

Assistant Professor – Research Fall 2017 – Present
Department of Chemistry and Biochemistry, Angelo State University, San Angelo, TX
Research in multidisciplinary topics: Nanoparticles, Fluorescence Enhancement, Organic Synthesis, and Chemical Education.
- Current undergraduate research students who received Welch Research Scholarship
    - Alexia Guerra, Andrea Hernandez, and Christian Bell
- Past undergraduate research students
    - Tamara Womack, Mackenzie Weaver, Johan Bethune, and Kylie Harman (all of them received the Welch Research Scholarship)
    - Lily Ellzey and Jeong Hun Song

Postdoctoral Fellow – Research Fall 2015 – Summer 2017
Department of Chemistry and Biochemistry, University of Oklahoma, Norman, OK
Course Development – Organic Chemistry Major and Non-major Laboratories
- Developed and implemented new experiments for undergraduate organic labs that benefit 250 students each semester.
    - Microwave-assisted Diels-Alder reaction – to study the effect of conformation, substituent, and reaction temperature on the rate of the reaction (using digital and quantitative TLC analysis)
    - Microwave-assisted Claisen and Dieckmann condensation – to study the factors affecting the rate of reactions
    - Esterification of benzyl alcohol – to study the effect of reaction time, temperature, and catalyst on the yield of the reaction
- Installed, maintained, and troubleshoot new instruments in teaching laboratories
    - Advion TLC and LC-Mass Spectrometer
    - CEM Microwave Mars-6 Reactor
    - Vernier Compact Gas Chromatograph with LoggerPro
    - Vernier Compact UV-Vis Spectrometer
    - Digital TLC Analyzer
- Created protocol and standard operating procedure for all of the above new instruments
- Coordinated with several other lab courses to promote the use of new instruments
- Mentored senior undergraduate students in my research and supervised graduate research assistants
- Developed organic lab manual for laboratory courses
- Revised safety protocols for organic teaching labs and maintained the inventory of chemicals and equipment

Ph.D. Dissertation Jan 2010 – May 2015
Department of Chemistry and Biochemistry, University of Oklahoma, Norman, OK
"Metal-enhanced fluorescence of gold nanoparticle and silica layered CdSe/ZnS quantum dot aggregates."
Advisor: Prof. Ronald L. Halterman
Funded by National Science Foundation

- Studied surface plasmon resonance property of metal nanoparticles to modify photophysical property of nearby fluorophores
- Synthesized gold nanoparticles of different sizes and characterized using transition electron microscopy
- Synthesized fluorescent CdSe/ZnS quantum dots of different sizes and encapsulated them in a silica shell
- Examined the photo-stability and size-tunable emission of the quantum dots
- Synthesized organic photo-sensitive compounds to anchor the gold nanoparticles on the silica surface
- Analyzed effect of proximity, size, and concentration of gold nanoparticles on the emission of quantum dots
- Obtained TEM/SEM images, fluorescence, UV/Vis, NMR, and Mass spectra

Laboratory Supervision 2012 - 2015
Halterman Lab, University of Oklahoma, Norman, OK

- Mentored and trained undergraduate students in the research program for organic synthesis
- Supervised new graduate and undergraduate students
- Maintained responsibility for safety in lab, inventory, and chemical waste management

Research in Chemical Education Spring 2011
University of Oklahoma, Norman, OK
"Comparing Carbonyl Chemistry in Comprehensive Introductory Organic Chemistry Textbooks"
Funded by National Science Foundation

Summer Research Fellowship Summer 2008
University of Hyderabad, Hyderabad, India
"Efficient molecular organic solar cells; synthesis of 4,4'-bis(diphenylmethyl)biphenyl systems"
Funded by the Indian Academy of Sciences

Master Thesis 2006 - 2008
SRMV College of Arts and Science, Bharathiar University, Coimbatore, India
"Removal of Heavy Metals from Aqueous Solution using Polyaniline as Adsorbent"
Funded by the University Grant Commission of India

TECHNICAL TRAINING AND PROFESSIONAL SKILLS

- Trained to independently operate TEM/SEM electron microscopes (Zeiss10 and JEOL2000)
- Trained to independently operate the NMR facilities (300, 400, and 600 MHz)
- Proficient in UV-Vis, fluorescence, and IR spectroscopy
- Expert in organic lab techniques like microscale synthesis, high-temperature reactions, solvent distillation, thin layer, column, and gas chromatography
- Expert in software like MestRenova NMR, ACD NMR, iSpartan, ChemBioOffice, ImageJ, and Photoshop

SELECTED PUBLICATIONS

Fuentes, F., Heidema, J., **Ramasamy, S.,** and Williams. S. "31P NMR Analysis of Thermal Decomposition of Tributylmethylphosphonium Dimethylphosphate". *Journal of Undergraduate Chemistry Research* **2022**, *21* (3), 81-83

Nelson, D.J., Kumar, R., and **Ramasamy, S.** "[1]Comparing Carbonyl Chemistry in Comprehensive Introductory Organic Chemistry Textbooks" *Journal of Chemical Education* **2015,** *92* (7), 1171-1177

SELECTED PRESENTATIONS

Bell, C.; **Ramasamy, S**. Efficacy and Reusability of Magnetized TiO2 Nanoparticles in Water Purification. In *ACS National Meeting Fall 2022: Sustainability in a Changing World*, Chicago, IL, 2022

Fuentes, F.; Heidema, J.; **Ramasamy, S**.; Williams, S. Comparing the thermal degradation of ZDDP and tributylmethylphosphonium dimethylphosphate using P-31 NMR techniques. 2022; Texas Section of the American Association of Physics Teachers (TSAAPT)

Fuentes, F.; Heidema, J.; **Ramasamy, S**.; Williams, S. Comparing the thermal degradation of ZDDP and tributylmethylphosphonium dimethylphosphate using P-31 NMR techniques. In *57th NCHC Annual Conference*, Dallas, Texas, 2022; National Collegiate Honors Council.

Alexia Guerra; Andrea Hernandez; Elisa Ortiz; **Ramasamy, S**. Microwave-Assisted Reactions for the Undergraduate Organic Laboratory. 2021; American Chemical Society.

Weaver, M., **Ramasamy, S**., "Study of Influence of Size and Relative Concentration Gold Nanoparticles and CDSe Quantum Dots on Metal Enhancement Fluorescence", Poster Presented at ASU Research Symposium, Angelo State University, San Angelo, TX (2019)

Ellzey, L., **Ramasamy, S**., "Synthesis of gold nanoparticles and place exchange study of ligands on gold surface", Poster Presented at ASU Research Symposium, Angelo State University, San Angelo, TX (2019)

Womack, T. V.; **Ramasamy, S**. In *Study on the effect of distance on metal-enhanced fluorescence of quantum dots*, American Chemical Society: 2018; pp SWRM-173, Poster Presented at ACS Southwest Regional Meeting (2018)

Weaver, M.; **Ramasamy, S**. In *Influence of size and relative concentration of gold nanoparticles and CdSe quantum dots on metal-enhanced fluorescence*, American Chemical Society: 2018; pp SWRM-346, Poster Presented at ACS Southwest Regional Meeting (2018)

Ramasamy, S.; Halterman, R. L. In *Metal enhanced fluorescence of gold nanoparticle and silica layered CdSe/ZnS quantum dot aggregates*, American Chemical Society: 2014; pp ORGN-297. Paper presented at the 247th American Chemical Society National Meeting (2014)

Nelson, D. J.; Kumar, R.; **Ramasamy, S**. In *Comparing carbonyl chemistry in comprehensive introductory organic chemistry textbooks*, American Chemical Society: 2014; pp CHED-1582, Paper presented at the 247th American Chemical Society National Meeting (2014)

Nelson, D.J., Nguyen, T., **Ramasamy, S**., Hastings, W., Rather, S. "Comparing Concepts Across Introductory Organic Chemistry Textbooks: Cyclohexane Conformers, Carbonyl Reactions, and Substitution Versus Elimination", Poster presented at the South West Regional Meeting – American Chemical Society (2012)

RESEARCH GRANTS

Texas A&M Engineering and Experiment Station (TEES) grant awarded for the research project "Photocatalytic Nanoparticles for Water Treatment" (2021-2022)

Faculty Research Enhancement Program (FREP) grant from ASU, for the research project "Application of Microwave in Organic and Nanoparticle Synthesis" (2020-2021)

Texas A&M Engineering and Experiment Station (TEES) grant award for the research project "Synthesis and Characterization of Quantum Dots" (2019-2020)

PROFESSIONAL SERVICE

- Member of AEP Distinguished Visiting Faculty Program Steering Committee (2021)
- Member of College Curriculum Committee for College of Science and Engineering, ASU (2021-2022)
- Member of Instructional Technology Advisory Committee for College of Science and Engineering, ASU (2021-2022)
- Member of Core Curriculum committee (2019-2020)
- Departmental liaison for 2nd-year retention plan (2019-Present)
- Reviewer for a peer-reviewed journal; Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy

AFFILIATIONS

- Secretary of American Chemical Society Permian Basin Local Section (ACS-PB) (2022-Present)
- ASU representative for Texas A&M Engineering Experiment Station (TEES) (2019-Present)
- Current member of Texas Academy of Science (TAS) (2019-Present)