

Sivaguru Jayaraman

Assistant Professor

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Education

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| 2006 – Present | Assistant Professor, Department of Chemistry and Molecular Biology, North Dakota State University, Fargo, ND USA. |
| 2003 – 2006 | Post-Doctoral Research Scientist, Columbia University, New York, NY, USA.
(Mentor: Prof. Nicholas J. Turro) |
| 1998 – 2003 | Ph. D. (Chemistry), Tulane University, New Orleans, LA, USA.
(Mentor: Prof. V. Ramamurthy) |
| 1996 – 1998 | Masters (Chemistry), Indian Institute of Technology, Madras, India. |
| 1993 – 1996 | Bachelors (Chemistry), Bharathidasan University,
St. Joseph's College (Autonomous), Trichy, India. |

Awards and honors

- 2008 National Science Foundation *CAREER* award.
- 2007 - Promoted to Full Member, Sigma Xi – The scientific research society.
- 2006 - Elected Associate member of Sigma Xi - The scientific research society.
- 2003 *Closs Award* - Inter-American Photochemical Society.
- 1993-1996: *College First* - St. Joseph's (Autonomous), Trichy.
- *Fr. Mathew J. Moolel Medal* - for Outstanding Academic Performance in Chemistry, St. Joseph's (Autonomous), Trichy.
- *A.C. Joseph Medal* - for Outstanding Performance in Chemistry. St. Joseph's (Autonomous), Trichy.
- *Fr. Camboulives Medal* - for Academic Performance in Chemistry. St. Joseph's (Autonomous), Trichy.
- Academic First prize in chemistry, St. Joseph's College. St. Joseph's (Autonomous), Trichy.
- *Under officer, Special Award*, National Cadet Corps. St. Joseph's (Autonomous), Trichy.
- *Bourdol Medal* - for Outstanding Academic Performance in Allied physics, St. Joseph's (Autonomous), Trichy.
- *College Management Prize* for Personality Development. St. Joseph's (Autonomous), Trichy.

Research Expertise

- August 2006 – Present: Assistant Professor, Department of Chemistry, Biochemistry and Molecular Biology, North Dakota State University, Fargo, ND, USA.
 - Light induced asymmetric transformations, Photochemistry within organized and confined media, Supramolecular photochemistry, Host-Guest Systems, Molecular recognition in chemical and biological systems, Molecular Self-Assembly.

External Research Funding

- National Science Foundation, CAREER award titled "Imprinting Molecular Chirality In Solution During Photo-Transformations," Award No. CHE-0748525.
- Travel grant: NDSU presidential travel award for attending the Gordon conference, Smithfield, Rhode Island, USA (July 2009).

- Travel grant for attending the NSF-workshop on Cucurbituril molecular containers, University of Maryland, College Park (August 2007).
- Travel grant: NDSU presidential travel award for attending the Gordon conference, Smithfield, Rhode Island, USA (July 2007).
- 2006 ND-EPSCoR: *Infrastructure Improvement Program - Seed Grant (IIP-SG)*: "Imprinting Molecular Chirality to Point Chirality In Solution In Light Induced Transformations. \$20,000, 10/2006 – 07/2007. (Grant # EPS-0447679; Project#: FAR0012373-2735).
- 2006 Startup Grant - Dept. of Chemistry, Biochemistry and Molecular Biology, North Dakota State University, Fargo, ND.

Group Information

- 5 students: 2 Graduate students, 2 Undergraduate students; 1 Post-Doctoral research scientist.

Synergistic Activities

- **Co-Organizer of the conference:**
 - A symposium on Newer Trends In Photochemistry, Columbia University, New York, NY. May 2008.
 - Exploring new frontiers in modern photochemistry and physical organic Chemistry, University of Miami, Coral Gables, FL. January 2007.
- **Synergetic Activities at NDSU**
 - **University Senator – North Dakota State University, Fargo, ND. 2009-2012.**
 - Represent College of Science and Mathematics in the University Senate.
 - **Lead PI – X-Ray instrumentation proposal - NDSU:**
 - Served as the lead PI in the interdepartmental X-ray proposal submitted to NSF.
 - **Chair – Search Committee – Materials characterization facility - NDSU:**
 - Served as the chairman of the search committee for hiring a PhD level staff scientist for the Material characterization facility at NDSU.
 - **Search Committee - Materials Faculty, Dept. of Chemistry and Molecular Biology, NDSU.**
 - Materials candidate Search committee: Evaluated applicants for the Materials position for the department.
 - **Panel Member –Faculty Mentoring and Teaching Series organized by the Dean of Science and Mathematics, NDSU.**
 - Participated as a 3rd year faculty in a panel hosted by the Dean of Science and Mathematics regarding PT&E experience for 1st and 2nd year faculty. (April 22, 2009)
 - **Panel Member – NSF CAREER discussion organized by the Dean of Science and Mathematics, NDSU.**
 - Participated in a panel hosted by the Dean of Science and Mathematics regarding to help faculty from College of Science and Mathematics and College of Engineering aspiring for NSF CAREER award (May 7, 2009).
- **Reviewer for Funding Agencies**
 - NSF (2009, Division of Chemistry).
- **Reviewer for international scientific journals**
 - Continued to serve as a reviewer for international scientific journals that include:
 - Journal of the American Chemical Society
 - Journal of Organic Chemistry
 - Journal of Physical Chemistry
 - Langumir
 - Photochemical and Photobiological sciences
 - Chirality
 - Organic Processes Research and Development
 - Journal of Photochemistry & Photobiology A: Chemistry
 - Chemical Communications
 - Chemistry of materials

- Photochemistry and Photobiology A: Chemistry
 - Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy
 - Dalton Transactions.
- **Judge – Science Fair:**
- Science Fair judge – Sullivan High School, Fargo, North Dakota. (12th February 2009).
 - Science Fair judge – Sullivan High School, Fargo, North Dakota. (7th February 2008).
 - Judge: Presentation by students of MVSU-NDSU internship program for minority students (24th July 2008).
 - Judge: Presentation by students of MVSU and NAU -NDSU internship program for minority students (23rd July 2009).
- **Faculty Advisor – Governor’s School:** Hosted two governor school students (one each in summer of 2007 and 2008) as part of the Governor’s School initiative at North Dakota.
- **Organizer for PICNICS program – Parents Involvement in Children Nurturing Intellectual Curiosity In Sciences:** A Program initiated with the help of local high schools to bring parents and their children under one roof to learn about recent advancement in science and technology.
- Seminar given at south Fargo High school, September 10, 2007.
 - Seminar given at south Fargo High school, September 08, 2008.
 - Organized an exploratory meeting with Fargo North and South High School delegates regarding summer PICNICS initiative. This program is designed to expose high school students in the Fargo-Moorhead area to cutting edge research atmosphere in chemical sciences so that it will enable them to take science and math as a career path.
 - Hosted School students from North Fargo High School and South Fargo High School, who were selected for the PICNICS summer research experience during the annual poster session. (May 6, 2009).
 - Developed a summer research program for High School students. In 2009, 5 students participated in the program. The program include, safety training (first 2 days), followed by training in research lab. Total of 5 faculty participated in this program to enable students to experience a cutting edge research atmosphere. A poster session was hosted in which the students presented their research work carried out during their internship. They presented a poster session (held of July 24, 2009) hosted by the department on the work carried out by them during their summer internship and were award a certificate of completion from the department.

Publications

Published With Affiliation to North Dakota State University, Fargo, ND.

41. Ayitou, A. J.; Jesuraj, J. L.; Barooah, N.; Ugrinov, A.; Sivaguru, J. Enantiospecific Photochemical Norrish/Yang Type II Reaction of Nonbiaryl Atropchiral α -Oxoamides in Solution—Axial to Point Chirality Transfer. *J. Am. Chem. Soc.*, **2009**, DOI: 10.1021/ja9050586.
40. Ramamurthy, V. Sivaguru, J. Controlling photoreactions through non-covalent interactions within zeolite nanocages. "Supramolecular effects on photochemical and photophysical processes." John Wiley & Sons, Inc., Hoboken, New Jersey, U.S.A. **2009**, (*invited book chapter*).
39. Ayitou, A. J.; Sivaguru, J. Light Induced Transfer of Molecular Chirality In Solution: Enantioselective Photocyclization of Molecularly Chiral Acrylanilides. *J. Am. Chem. Soc.*, **2009**, 131(14), 5036-5037.
38. Ayitou, A. J.; Ugrinov, A.; Sivaguru, J. 6 π -Photocyclization of *O*-*tert*-butylacrylanilides. N-substitution dictates the regiochemistry of cyclization *Photochem. Photobiol. Sci.*, **2009**, 8, 751-754.
37. Solomon, M. R.; Saito, H.; Sivaguru, J.; Jockusch, S.; Inoue, Y.; Adam, W.; Turro, N. J. Isolation and *syn* Elimination of a Peterson Adduct to Obtain Optically Pure Product in the Diastereoselective Synthesis of Oxazolidinone-Functionalized Enecarbamates *Lett. Org. Chem.*, **2009**, 6, 362-366. (*Based on going collaboration with Turro, Adam and Inoue*)
36. Solomon, M. R.; Sivaguru, J.; Jockusch, S.; Adam, W.; Turro, N. J. Physical and Chemical Quenching Rates and Their Influence on Stereoselective Photooxygenation of Oxazolidinone-functionalized

Enecarbamates. *Photochem. Photobiol. Sci.*, **2009**, *8*, 912-915. (Based on going collaboration with Turro, Adam and Inoue)

35. Barooah, N.; Pemberton, B. C.; Johnson, A. C.; Sivaguru, J. Photodimerization and complexation dynamics of coumarins in the presence of cucurbit[8]urils. *Photochem. Photobiol. Sci.*, **2008**, *7*, 1473-1479. (Full paper)
34. Barooah, N.; Pemberton, B. C.; Sivaguru, J. Manipulating Photochemical Reactivity of Coumarins within Cucurbituril Nanocavities. *Org. Lett.*, **2008**, *10*, 3339-3342.
33. Solomon, M.; Sivaguru, J.; Jockusch, S.; Adam, W.; Turro, N. J. Vibrational Deactivation Of Singlet Oxygen: Does It Play A Role In Stereoselectivity During Photooxygenation? *Photochem. Photobiol. Sci.*, **2008**, *7*, 531-533. (Based on going collaboration with Turro, Adam and Inoue)
32. Sivaguru, J.; Solomon, M. R.; Poon, T.; Jockusch, S.; Bosio, S. G.; Adam, W.; Inoue, Y.; Turro, N. J., The Reaction of Singlet Oxygen with Enecarbamates: A Mechanistic Playground for Investigating Chemoselectivity, Stereoselectivity, and Vibratioselectivity of Photooxidations. *Acc. Chem. Res.* **2008**, *41*, 387-400. (Review)

Published with Affiliation to Columbia University, New York, NY and Tulane University, New Orleans, LA. (Publication based on post-doctoral and doctoral work)

31. Saito, H.; Sivaguru, J.; Jockusch, S.; Dyer, J.; Inoue, Y.; Adam, W.; Turro, N. J., Controlled diastereoselectivity at the alkene-geometry through selective encapsulation: E-Z photoisomerization of oxazolidinone-functionalized enecarbamates within hydrophobic nano-cavities. *Chem. Commun.* **2007**, 819-821.
30. Sivaguru, J.; Poon, T.; Hooper, C.; Saito, H.; Solomon, M. R.; Jockusch, S.; Adam, W.; Inoue, Y.; Turro, N. J., A Comparative Mechanistic Analysis of the Stereoselectivity Trends Observed in the Oxidation of Chiral Oxazolidinone-Functionalized Enecarbamates by Singlet Oxygen, Ozone and Triazolinedione. *Tetrahedron*, **2006**, *62*, 10647-10659.
29. Sivaguru, J.; Solomon, M. R.; Saito, H.; Poon, T.; Jockusch, S.; Adam, W.; Inoue, Y.; Turro, N. J., Conformationally controlled (entropy effects), stereoselective vibrational quenching of singlet oxygen in the oxidative cleavage of oxazolidinone-functionalized enecarbamates through solvent and temperature variations. *Tetrahedron*, **2006**, *62*, 6707-6717.
28. Sivaguru, J.; Saito, H.; Solomon, M. R.; Kaanumalle, L. S.; Poon, T.; Jockusch, S.; Adam, W.; Ramamurthy, V.; Inoue, Y.; Turro, N. J., The Control Of Chirality By Cations In Confined Spaces: Photooxidation of Enecarbamates Inside Zeolite Supercages. *Photochem. Photobiol.*, **2006**, *82*, 123-131.
27. Sivaguru, J.; Saito, H.; Poon, T.; Omonuwa, T.; Franz, R.; Jockusch, S.; Hooper, C.; Inoue, Y.; Adam, W.; Turro, N. J., Stereoselective Photooxidation of Enecarbamates: Reactivity of Ozone vs Singlet Oxygen. *Org. Lett.* **2005**, *7*(11), 2089-2092.
26. Sivaguru, J.; Wada, T.; Origane, Y.; Inoue, Y.; Ramamurthy, V., Mechanism of photoisomerization of optically pure trans-2,3-diphenylcyclopropane-1-carboxylic acid derivatives. *Photochem. Photobiol. Sci.* **2005**, *4*(1), 119-127.
25. Saito, H.; Sivaguru, J.; Jockusch, S.; Inoue, Y.; Adam, W.; Turro, N. J., Stereoselective E/Z photoisomerization of oxazolidinone functionalized enecarbamates: direct and triplet sensitized irradiation. *Chem. Commun.* **2005**, 3424-3426.
24. "Shedding a little light on singlet oxygen", *Spectral Lines*, **2005**, Issue 47.
23. Jockusch, S.; Sivaguru, J.; Turro, N. J.; Ramamurthy, V., Direct measurement of the singlet oxygen lifetime in zeolites by near-IR phosphorescence. *Photochem. Photobiol. Sci.* **2005**, *4*(5), 403-405.
22. "Singlet oxygen feat", *Chem. Engr. News*, **2004**, *82*(34), 7.
21. Sivaguru, J.; Poon, T.; Franz, R.; Jockusch, S.; Adam, W.; Turro, N. J., Stereocontrol within Confined Spaces: Enantioselective Photooxidation of Enecarbamates Inside Zeolite Supercages. *J. Am. Chem. Soc.* **2004**, *126*(35), 10816-10817.

20. Poon, T.; Sivaguru, J.; Franz, R.; Jockusch, S.; Martinez, C.; Washington, I.; Adam, W.; Inoue, Y.; Turro, N. J., Temperature and Solvent Control of the Stereoselectivity in the Reactions of Singlet Oxygen with Oxazolidinone-Substituted Enecarbamates. *J. Am. Chem. Soc.* **2004**, *126*(34), 10498-10499.
19. Sivaguru, J.; Sunoj, R. B.; Wada, T.; Origane, Y.; Inoue, Y.; Ramamurthy, V., Enhanced Diastereoselectivity via Confinement: Photoisomerization of 2,3-Diphenylcyclopropane-1-carboxylic Acid Derivatives within Zeolites. *J. Org. Chem.* **2004**, *69*(20), 6533-6547.
18. Sivaguru, J.; Sunoj, R. B.; Wada, T.; Origane, Y.; Inoue, Y.; Ramamurthy, V., Enhanced Diastereoselectivity via Confinement: Diastereoselective Photoisomerization of 2,3-Diphenyl-1-benzoylcyclopropane Derivatives within Zeolites. *J. Org. Chem.* **2004**, *69*(17), 5528-5536.
17. Ramamurthy, V.; Sivaguru, J.; Shailaja, J.; Natarajan, A.; Kaanumalle, L. S.; Karthikeyan, S.; Joy, A., Chiral photochemistry within zeolites. In *Molecular and Supramolecular Photochemistry*, Ramamurthy, V.; Schanze, K., Eds. Marcel Dekker: New York, 2004; Vol. 11, pp 563-631.
16. Sivaguru, J.; Natarajan, A.; Kaanumalle, L. S.; Shailaja, J.; Uppili, S.; Joy, A.; Ramamurthy, V., Asymmetric Photoreactions within Zeolites: Role of Confinement and Alkali Metal Ions. *Acc. Chem. Res.* **2003**, *36*(7), 509-521.
15. Sivaguru, J.; Jockusch, S.; Turro, N. J.; Ramamurthy, V., Photoisomerization of 2,3-diphenylcyclopropane-1-carboxylic acid derivatives. *Photochem. Photobiol. Sci.* **2003**, *2*(11), 1101-1106.
14. Sivaguru, J.; Shailaja, J.; Ramamurthy, V., Organic photochemistry within zeolites: selectivity through confinement. In *Handbook of Zeolite Science and Technology*, Auerbach, S.; Carrado, K.; Dutta, P., Eds. Marcel Dekker: New York, 2003; pp 515-589.
13. Kaanumalle, L. S.; Sivaguru, J.; Arunkumar, N.; Karthikeyan, S.; Ramamurthy, V., Cation- π interactions as a tool to enhance the power of a chiral auxiliary during asymmetric photoreactions within zeolites. *Chem. Commun.* **2003**, *1*, 116-117.
12. Sivaguru, J.; Shichi, T.; Ramamurthy, V., Reactive-state spin-dependent diastereoselective photoisomerization of trans,trans-2,3-diphenylcyclopropane-1-carboxylic acid derivatives included in zeolites. *Org. Lett.* **2002**, *4*(24), 4221-4224.
11. Kaanumalle, L. S.; Sivaguru, J.; Sunoj, R. B.; Lakshminarasimhan, P. H.; Chandrasekhar, J.; Ramamurthy, V., Light-Induced Geometric Isomerization of 1,2-Diphenylcyclopropanes Included within Y Zeolites: Role of Cation-Guest Binding. *J. Org. Chem.* **2002**, *67*(25), 8711-8720.
10. Pradhan, A. R.; Uppili, S.; Shailaja, J.; Sivaguru, J.; Ramamurthy, V., Zeolite-coated quartz fibers as media for photochemical and photophysical studies. *Chem. Commun.* **2002**, *6*, 596-597.
09. Koodanjeri, S.; Sivaguru, J.; Pradhan, A.; Ramamurthy, V., Asymmetric induction with β -cyclodextrin: cis-trans photoisomerization of diphenyl-cyclopropane and its derivatives. *Proc. Natl. Acad. Sci., India, Sect. A.* **2002**, *68*(5), 453-463.
08. Chong, K. C. W.; Sivaguru, J.; Shichi, T.; Yoshimi, Y.; Ramamurthy, V.; Scheffer, J. R., Use of Chirally Modified Zeolites and Crystals in Photochemical Asymmetric Synthesis. *J. Am. Chem. Soc.* **2002**, *124*(12), 2858-2859.
07. Sivaguru, J.; Shailaja, J.; Uppili, S.; Ponchot, K.; Joy, A.; Arunkumar, N.; Ramamurthy, V., Achieving enantio and diastereoselectivities in photoreactions through the use of a confined space. In *Organic Solid-State Reactions*, Toda, F., Ed. Kluwer Academic Publisher: Boston, 2002; pp 159-188.
06. Sivaguru, J.; Scheffer, J. R.; Chandrasekhar, J.; Ramamurthy, V., Confined space and cations enhance the power of a chiral auxiliary: photochemistry of 1,2-diphenylcyclopropane derivatives. *Chem. Commun.* **2002**, *8*, 830-831.
05. Shailaja, J.; Sivaguru, J.; Uppili, S.; Joy, A.; Ramamurthy, V., Use of a confined space (zeolite) in enantioselective and diastereoselective photoreactions. *Microporous and Mesoporous Materials.* **2001**, *48*(1-3), 319-328.
04. "Boxed In: Chemistry In Confined Spaces", *Chem. Engr. News*, **2000**, *78*(34), 40-47.

03. Cheung, E.; Chong, K. C. W.; Jayaraman, S.; Ramamurthy, V.; Scheffer, J. R.; Trotter, J., Enantio- and Diastereodifferentiating cis,trans-Photoisomerization of 2 β ,3 β -Diphenylcyclopropane-1 α -carboxylic Acid Derivatives in Organized Media. *Org. Lett.* **2000**, 2(18), 2801-2804.
02. Shailaja, J.; Sivaguru, J.; Robbins, R. J.; Ramamurthy, V.; Sunoj, R. B.; Chandrasekhar, J., Singlet Oxygen Mediated Oxidation of Olefins within Zeolites: Selectivity and Complexities. *Tetrahedron* **2000**, 56(36), 6927-6943.
01. Sivaguru Jayaraman; Uppili, S.; Natarajan, A.; Joy, A.; Chong, K. C. W.; Netherton, M. R.; Zenova, A.; Scheffer, J. R.; Ramamurthy, V., The influence of chiral auxiliaries is enhanced within zeolites. *Tetrahedron Lett.* **2000**, 41(43), 8231-8235.

Conference Presentation

Presented with Affiliation to North Dakota State University, Fargo, ND.

17. "Enantiospecific Photochemical Transformation in Solution" J. Sivaguru*, Anoklase Jean-Luc Ayitou and Josepha L. Jesuraj; *Gordon Research Conference in Organic Photochemistry, Smithfield, Rhode Island; July 2009.*
16. "Molecular Chiral Transfer: 6 π -photocyclization of acrylanilides" Anoklase Ayitou and J. Sivaguru. *Inter-American Photochemical society, Tampa Bay, FL, USA. January 2009.* (presented by Anoklase Ayitou)
15. "Photodimerization and Dynamics of Coumarin Derivatives in Water Soluble Cucurbit[8]uril Nanocavities" Barry Pemberton, Nilotpal Barooah, Alexander C. Johnson and J. Sivaguru. *Inter-American Photochemical society, Tampa Bay, FL, USA. January 2009.* (presented by Barry Pemberton)
14. Controlling Photochemistry in Solution and in Water Soluble Nano-Containers Anoklase Ayitou, Nilotpal Barooah, Barry C. Pemberton and J. Sivaguru. ACS-Mid West Regional conference on Photochemistry and Photophysics Applications in Biology and Energy Conversion (Abstract ID#: 60960), Kearney, NE. **October 2008** (invited talk presented by J. Sivaguru).
13. Controlling Photoreactivity of Coumarins in Water Soluble Nano-Cavities Nilotpal Barooah and J. Sivaguru ACS-Mid-Atlantic Regional Conference on Photochemistry (ID: 53281) New York, NY. **May 2008** (invited talk presented by J. Sivaguru).
12. "Imprinting Molecular Chirality in Light Induced Transformations" Wobbema, A.; Ayitou, A. and J. Sivaguru; *Governor school student presentation, North Dakota State University, Fargo, North Dakota; August 2007.*
11. "Imprinting Molecular Chirality in Light Induced Transformations" Ayitou, A. and J. Sivaguru; *Gordon Research Conference in Organic Photochemistry, Smithfield, Rhode Island; July 2007.*

Presented with Affiliation to Columbia University, New York, NY or Tulane University, New Orleans, LA. (Based on post-doctoral and doctoral work)

10. "Host-Guest Chemistry and Entropy to control stereoselection in photoreactions" J. Sivaguru, Hideaki Saito, Solomon, Marissa, Thomas Poon, Yoshihisa Inoue, Waldemar Adam and Nicholas J. Turro; *Gordon Research Conference in Organic Photochemistry, Smithfield, Rhode Island; July 2005.*
09. "Scanning tunneling microscopy: A tool to identify the chirality of absorbed molecules on graphite" Vivian Nora Chin, Kavita Kannappan, Sivaguru Jayaraman, Nicholas J. Turro, and George Flynn.; *American Chemical Society; San Diego, California; COLL-353; March 2005.*
08. "Mechanistic insights into the diastereoselective photooxidation of enecarbamates" Roberto Franz, Thomas Poon, J Sivaguru, Steffen Jockusch, Nicholas J. Turro, and Waldemar Adam.; *American Chemical Society; San Diego, California; ORGN 464; March 2005.*
07. "Mechanistic insight on the stereoselective photooxidation of enecarbamates using PTAD, a singlet oxygen analog" Catherine Hooper, Thomas Poon, Roberto Franz, J Sivaguru, Steffen Jockusch, Nicholas J. Turro, and Waldemar Adam.; *American Chemical Society; San Diego, California; CHED 439; March 2005.*

06. "Stereoselective Photoisomerization of Diphenylcyclopropane Derivatives. A Study In Isotropic And Organized media." J. Sivaguru and V. Ramamurthy.; *Gordon Research Conference in Organic Photochemistry, Massachusetts*; **July 2003**.
05. "Asymmetric Photoreaction in Isotropic and organized media. Photochemistry of Diphenylcyclopropane Derivatives." Sivaguru Jayaraman and V. Ramamurthy; *American Chemical Society, New Orleans, Louisiana*; *ORGN-488*; **March 2003**.
04. "Asymmetric photoreaction of 2,3-diphenylcyclopropane-1-benzoylcyclopropane derivatives inside zeolites." J. Sivaguru, Teseuya Shichi, Yoshimi Yoshiharu, J. R. Scheffer, V. Ramamurthy; *Photochirogenesis 2001, Japan*; **September 2001**.
03. "Control of Photochemical Reactions Via Confinement And Cation-Organic Interactions: Photoisomerization of 1,2-diphenylcyclopropanes." P. Lakshminarasimhan, J. Sivaguru, Lakshmi S. Kaanumalle, V. Ramamurthy.; *Inter-American Photochemical society, Argentina*; **May 2001**.
02. "Asymmetric photoreaction of 2,3-diphenylcyclopropane-1-carboxylic acid derivatives inside zeolites" J. Sivaguru, V. Ramamurthy; *Symposium on Recent Trends in Photochemical Sciences, Trivandrum, India*; **January 2001**.
01. "Asymmetric photoreactions inside zeolites" J. Shailaja, J. Sivaguru, V. Ramamurthy; *Inter-American Photochemical society-Winter conference, Clearwater beach, Florida*; **January 2000**.

Invited Talks / Oral Presentation

17. Gordon Conference in Photochemistry, Smithfield, RI. USA. July **2009**.
16. University of North Dakota, Grand Forks, ND, November **2008**.
15. Minnesota State University, Moorhead, MN, November **2008**.
14. MWRM-ACS Photochemistry & Solar Energy Symposium, Kearney, NE. October **2008**.
13. PICINCS – seminar given at south Fargo High School, September, **2008**.
12. MARM-ACS Photochemistry Symposium, New York, NY. May **2008**.
11. Department of Chemistry, *Central University, Pondicherry*, India. March **2008**.
10. Department of Chemistry, *Bharadhasan University, Trichy*, India. March **2008**.
09. PICINCS – seminar given at south Fargo High School, September, **2007**.
08. Exploring new frontiers in modern photochemistry and physical organic Chemistry, University of Miami, Miami, FL. January **2007**.
07. Department of Chemistry and Biochemistry, *Ohio University, Athens, OH*, February **2006**.
06. Department of Chemistry and Molecular Biology, *North Dakota State University, Fargo, ND*, January **2006**.
05. Department of Chemistry, *Clemson University, Clemson, SC*, November **2005**.
04. "Stereoselectivity Through Multidimensional Control" *Department of Chemistry, Columbia University, New York*, September **2004**.
03. "Enantioselectivity Through Multidimensional Control" *Sixth Annual Wyeth/Columbia Workshop, New York*, May **2004**.
02. "Asymmetric Induction During Photoisomerization of Diphenylcyclopropane Derivatives: A Study In Isotropic and Confined Media" *Inter-American Photochemical Society-Winter conference – Talk presented for receiving the Closs award, Clearwater beach, Florida*, January **2003**.
- 01 "Asymmetric Photoreaction In Organized Media" *Indian Institute of Technology, Madras, India*, January **2001**.

Research Citations

03. "Shedding a little light on singlet oxygen", *Spectral Lines*, **2005**, Issue 47.

02. "Singlet oxygen feat", *Chem. Engn. News*, **2004**, 82(34), 7.
01. "Boxed In: Chemistry In Confined Spaces", *Chem. Engn. News*, **2000**, 78(34), 40-47.

Conference / Workshop

16. July 2009: Gordon Conference in Photochemistry, Smithfield, RI. USA.
15. January 2009: Inter-American Photochemical Society-Winter conference, Tampa Bay, Florida, USA.
14. October 2008: American Chemical Society (MWRM), Kearney, NE, USA.
13. May 2008: American Chemical Society (MARM), New York, NY, USA.
12. August 2007: NSF Work shop - University of Maryland, College Park, USA.
11. July 2007: Gordon Conference in Photochemistry, Smithfield, RI. USA.
10. January 2007: Exploring new frontiers in modern photochemistry and physical organic Chemistry, University of Miami, Coral Gables, FL, USA.
09. September 2006: ND EPSCoR 2006 State Conference: *North Dakota's Evolving Research Infrastructure*. Grand Forks, USA.
08. April 2006: NSF-CAREER Proposal workshop and seminar, Grand Forks, USA.
07. July 2005: Gordon Conference in Photochemistry, Smithfield, RI. USA.
06. May 2004: *Sixth Annual Wyeth/Columbia Workshop*, New York, USA.
05. July 2003: Gordon Conference in Photochemistry, Massachusetts, USA.
04. January 2003: *Inter-American Photochemical Society-Winter conference*, Clearwater beach, Florida.
03. March 2003: *American Chemical Society*, New Orleans, LA, USA.
02. January 2001: *Symposium on Recent Trends in Photochemical Sciences*, Trivandrum, India.
01. January 2000: *Inter-American Photochemical society-Winter conference*, Clearwater beach, FL, USA.

Teaching Experience

- Fall 2009: Chem 741 – Physical Organic Chemistry I.
- Spring 2009 Chem 341 – Organic Chemistry I.
- Fall 2008: Chem 741 – Physical Organic Chemistry I.
- Spring 2008: Chem 744 – Organic Spectroscopy.
- Spring 2008: Chem 754 – Organic Spectroscopy (Lab).
- Fall 2007: Chem 240 – Survey of Organic Chemistry.
- Fall 2006: Chem 741 - Physical Organic Chemistry I.
- Fall 2004 and Fall 2005: Assisted Prof. Nicholas J. Turro in his General Chemistry Class at Columbia University.
- Aug. 1998 – 2003: 5 Semesters as Teaching Assistant (Organic chemistry - 4 semesters, General Chemistry – 1 semester).
- Jan – May 2000 Teaching assistant for Organic Chemistry with Prof. V. Ramamurthy. Involved in problem solving session for the class, which was conducted weekly. Maintained the teaching webpage for Prof. V. Ramamurthy.

Collaborators

- Prof. Nicholas J. Turro, Columbia University, New York, NY, USA.
- Prof. V. Ramamurthy - University of Miami, Miami, FL, USA.
- Prof. Waldemar Adam - University of Wuerzburg, Germany and University of Puerto Rico, Puerto Rico, USA.
- Prof. Jeffery Rack, University of Ohio, Athens, OH, USA.

Memberships / Affiliations

- American Chemical society.

- Inter-American Photochemical society
- Sigma Xi, The Scientific Research Society.
- American Association for the Advancement of Science.

Students trained

- *Graduate students (2)*: Anoklase J. Ayitou, Barry Pemberton.
- *Post-doctoral associates (2)* – Nilotpal Barooah, Josepha Lourdu Raj.
- *Undergraduate students (7)* – Joseph Omlid, Robert Haaland, Alexander Johnson, Anoklase J. Ayitou (*minority student*), Travis Bjordahl, Essen Taylor, Samantha Houle.
- *Governor school students (3)* – Meredith Foster, Alisa Wobbema, Juan Monsalve Wagner,
- *PICNICS* – NSF CAREER sponsored program (6): Alexander Johnson, Meredith Foster, Alisa Wobbema, Celia Foster, Landon Melchior, Kelsie Eiler.

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