

VIKAS GARG

(Curriculum Vitae)

College of Integrative Sciences and Arts
Faculty of Science and Mathematics
Arizona State University- Polytechnic Campus
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SUMMARY Chemistry Lecturer at Arizona State University

PROFILE A highly motivated university educator with demonstrated ability to teach, motivate and guide students of diverse populations at various academic levels

EDUCATION

2009 **Ph.D., Chemistry**
Department of Chemistry & Biochemistry, *Arizona State University, Tempe, AZ*

2006 **M.S., Chemistry (G.P.A- 4.0/4.0)**
Department of Chemistry & Biochemistry, *Arizona State University, Tempe, AZ*

AWARDS AND HONORS

2021 **Grand Awards Judge**
Regeneron International Science and Engineering Fair

2019 **Grand Awards Judge**
Intel International Science and Engineering Fair

2012 **Distinguished Instructor Award**
Department of Chemistry & Biochemistry, *Arizona State University*

2009 **Distinguished Teaching Assistant Award**
Department of Chemistry & Biochemistry, *Arizona State University*

TEACHING EXPERIENCE

11/2013- Present **Lecturer, Arizona State University- Polytechnic, Mesa, AZ**

- Organic Chemistry 231, 233, 234, 237, 238
- ABS 494: Natural Products and Drug Discovery
- Responsible for over 150 students each semester

2009- 11/2013 **Instructor, Arizona State University, Tempe, AZ**

- Organic Chemistry 231, 237, 233, 234, 238
- Responsible for over 750 students each semester
- Oversee 15-20 teaching assistants per semester

05/2010-07/2010 **Adjunct Faculty, Mesa Community College, Mesa, AZ**

- General Chemistry 152, 152 LL

2004 - 2009

Graduate Teaching Associate, Arizona State University, Tempe, AZ

Laboratory Teaching Associate

- General Organic Chemistry Lab- 237,238,336
 - Organic Chemistry Lab for Majors- 337, 338
 - General Chemistry Lab- 113
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- Lectured theory, and demonstrated experimental and analytical techniques like NMR, IR, GC-MS, UV-Vis, Column Chromatography, TLC etc.
 - Maintained safe laboratory environment for over 20-40 undergraduates
 - Monitored and reported chemical waste
 - Graded lab techniques, pre-labs and lab reports
 - Maintained grade records for over 40 students/semester through blackboard
 - Held office hours and review sessions which helped students earn better grades
 - Received excellent instructional reviews from students and faculty (as high as 4.95/5)

Classroom Teaching Associate

- General Organic Chemistry -331,
 - Advanced Organic Chemistry – 433/531 , 434/532
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- Held weekly office hours, proctored exams, graded homework, quizzes and exams
 - Conducted midterm and final exam review sessions
 - Maintained grade records for over 50 students /semester

2003

Laboratory Teaching Assistant, University of Nebraska-Lincoln, NE

- General Chemistry Lab- 109

2002-2003

Graduate Teaching Assistant, Indian Institute of Technology, Delhi, India

- Freshman Chemistry Lab

TEACHING INTERESTS

- General Organic Chemistry lecture and labs
- General Chemistry lecture and labs
- Research-based interdisciplinary courses
- Curriculum design

RESEARCH EXPERIENCE

2004- 2009

Doctoral Research, Arizona State University, Tempe, AZ

- Advisor: Prof. Devens Gust
- Dissertation: *Design and Synthesis of Hexaphenylbenzene based Artificial Photosynthetic Antenna-Reaction Centers*
 - Synthesized novel artificial photosynthetic antenna using coumarins and porphyrins organized on hexaphenylbenzene core
 - Developed new multistep synthetic methodology for making macrocyclic artificial photosynthetic reaction center using porphyrins and fullerene bisadduct
 - Utilized techniques like NMR, IR, UV-Vis, MS, Column Chromatography and TLC
 - Learned and utilized computational methods for structure optimization using Gaussian and Chem3d softwares

SERVICE

- Academic Senate, Arizona State University-Polytechnic Campus, Member (2017-present)
- University Senate Facilities Committee, Arizona State University, Member (2017-present)
- Biochemistry Lecturer Search Committee, College of Integrative Sciences and Arts, Arizona State University, Chair (2021)
- Non-Tenure Track Personnel Committee, College of Integrative Sciences and Arts, Arizona State University, Member (2016-2018)
- Academic Standards Committee, College of Integrative Sciences and Arts, Arizona State University, Member (2019-2021)
- Arizona Course Equivalency Tracking System (ACETS) Evaluator. (2014-present)
- PSM Lab Safety Committee, College of Integrative Sciences and Arts, Arizona State University, Member (2021-present)

BOOKS

1. Lawrence Morgan and **Vikas Garg**. General Organic Chemistry I CHM 237. Kendall Hunt, **2017**.
2. Lawrence Morgan and **Vikas Garg**. General Organic Chemistry II CHM 238. Kendall Hunt, **2017**.

PUBLICATIONS

1. **Vikas Garg**, Gerdenis Kodis, Paul A. Liddell, Yuichi Terazono, Thomas. A. Moore, Ana. L. Moore and Devens Gust. Artificial Photosynthetic Reaction Center with a Coumarin-Based Antenna System. *J.Phys.Chem.B.* **2013**, 117, 11299.
2. **Vikas Garg**, Gerdenis Kodis, Mirianas Chachisvilis, Michael Hamburger, Ana. L. Moore, Thomas. A. Moore, and Devens Gust. Conformationally Constrained Macrocyclic Diporphyrin-Fullerene Artificial Photosynthetic Reaction Center. *J. Am. Chem. Soc.* **2011**, 133, 2944.
3. Yuichi Terazono, Gerdenis Kodis, Paul. A Liddell, **Vikas Garg**, Thomas. A. Moore, Ana. L. Moore and Devens Gust. Multiantenna Artificial Photosynthetic Antenna-reaction Center Complex. *J.Phys.Chem.B.* **2009**,113, 7147
4. Yuichi Terazono, Gerdenis Kodis, Paul. A Liddell, **Vikas Garg**, Miguel Gervaldo, Thomas. A. Moore, Ana. L. Moore and Devens Gust., Photoinduced Electron Transfer in a Hexaphenylbenzene-based Self-assembled Porphyrin-fullerene Triad. *Photochem. Photobiol.* **2007**, 83, 464.
5. Gerdenis Kodis, Yuichi Terazono, Paul. A .Liddell, Joakim Andreasson, **Vikas Garg**, Michael Hamburger, Thomas. A. Moore, Ana. L. Moore and Devens Gust. Energy and Photoinduced Electron transfer in a Wheel-Shaped Artificial Photosynthetic Antenna-Reaction Center Complex. *J. Am. Chem. Soc.* **2006**, 128, 1818.
6. Yuichi Terazono, Paul. A Liddell, **Vikas Garg**, Gerdenis Kodis, Alicia Brune, Michael Hamburger, Thomas. A. Moore, Ana. L. Moore and Devens Gust. Artificial photosynthetic antenna-reaction center complexes based on a hexaphenylbenzene core. *J.Porphrins Phthalocyanins* **2005**, 9, 706-723

PRESENTATIONS

1. **Vikas Garg**, Gerdenis Kodis, Michael Hamburger, Thomas. A. Moore, Ana. L. Moore and Devens Gust. Macrocyclic artificial photosynthetic reaction center organized on a hexaphenylbenzene core. Abstracts, 237th ACS National Meeting, Salt lake City, UT, United States, March 22-26, **2009**
2. **Vikas Garg**, Gerdenis Kodis, Yuichi Terazono, Paul. A. Liddell, Thomas. A. Moore, Ana. L. Moore and Devens Gust. Self-Assembled Artificial Photosynthetic Antenna-Reaction Complex. Arizona State University, Tempe, AZ, March 7, **2009**
3. Devens Gust, Yuichi Terazono, Paul A. Liddell, Gerdenis Kodis, **Vikas Garg**, Joakim Andreasson, Thomas A. Moore and Ana L. Moore. Integrating artificial photosynthetic antennas and reaction centers. Abstracts, 62nd Southwest Regional Meeting of the American Chemical Society, Houston, TX, United States, October 19-22, **2006**
4. Gerdenis Kodis, Yuichi Terazono, Paul A. Liddell, **Vikas Garg**, Christian Herrero, Rodrigo E. Palacios, Michael Hamburger, Rudi Berera, John T. M. Kennis, Thomas. A. Moore, Ana. L. Moore and Devens Gust. Exploring paradigms of natural photosynthesis: energy and electron transfer in artificial antenna-reaction center complexes. Abstracts, 40th Western Regional Meeting of the American Chemical Society, Anaheim, CA, United States, January 22-25, **2006**

RESEARCH INTERESTS

- Synthesis and characterization of Artificial Photosystems
- Synthesis of Fullerene and Porphyrin based nanomaterials
- Material devices and switches

- Tuning of different dyes to cover most of solar spectrum
- Dye Sensitized Solar Cells

MEMBERSHIPS

2008- 2009	American Chemical Society
2008- 2009	American Association for the Advancement of Science
2005	Graduate and Professional Student Association, <i>Arizona State University, Tempe, AZ</i>
2003-present	Alumnus, <i>Indian Institute of Technology, Delhi, India</i>

COMPUTER SKILLS

- Windows (Vista, 8, 10)
- Adobe Acrobat, MS Office (PowerPoint, Excel and Word)
- Origin/Data analysis and graphing
- VPN Securemote, Blackboard
- Chem Draw, Chem 3D, Gaussian, Endnote
- ACE organic, Connect, Sapling, Achieve
- MESTREC , Sparky, Photochem CAD

REFERENCES

Supervisor

Prof. Douglas Green
 College of Integrative Sciences and Arts
 Arizona State University- Polytechnic Campus
 Phone: (480) 727-1251
 E-mail: DM.Green@asu.edu

Doctoral Research Advisor

Prof. Devens Gust
 Center for Bioenergy & Photosynthesis
 Department of Chemistry and Biochemistry
 Arizona State University
 Phone: (480) 965-4547
 E-mail: gust@asu.edu

Former Supervisor

Prof. Ana Moore
 Department of Chemistry and Biochemistry
 Arizona State University
 Phone: (480) 965-2953
 E-mail: amoore@asu.edu