

# Paul Johns

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## EDUCATION

- 2007–2008; **Ph.D.** University of Notre Dame, Notre Dame, IN, 3.7/4.0.  
2013–present Physical Chemistry
- 2010–2012 **M.Div. Credits.** The Catholic University of America, Washington, DC, 3.4/4.0.  
Incomplete
- 2003–2007 **B.S.** Saint Francis University, Loretto, PA, 3.8/4.0. Honors Program Graduate, *Magna Cum Laude*  
Major: Chemistry Minors: Mathematics, Physics
- HONORS
- Kappa Mu Epsilon Mathematics Honor Society (Pennsylvania Mu Chapter President)
  - Delta Epsilon Sigma National Scholastic Honor Society
  - Saint Francis University Honor Society
  - Senior Chemistry Award

## EXPERIENCE

### RESEARCH

- 2013–present **Graduate Student Research Assistant**, University of Notre Dame, Notre Dame, IN.  
Advisor: Dr. Gregory Hartland
- Studied the effects of discontinuities on the propagation of surface plasmon polaritons in gold nanostructures
  - Utilized: HeNe laser, Obis 405 nm laser, Notre Dame Nanofabrication Facility (a cleanroom facility), Airco FC-1800 multi-pocket electron-beam evaporator, Coherent Chameleon Ultrafast II Ti:sapphire laser, Mira OPO.
- 2008 **Graduate Student Research Assistant**, University of Notre Dame, Notre Dame, IN.  
Advisor: Dr. Steven Corcelli
- Began investigating aqueous/polar organic solvent interfaces
  - Utilized: AMBER, VMD
- 2005–2007 **Research Student**, Saint Francis University, Loretto, PA.  
Advisor: Dr. Pedro Muíño
- Investigated the effects of protein structure and solvation on the tryptophan fluorescence quantum yield.
  - Investigated the quenching abilities of tryptophan and *N*-acetyltryptophanamide in the dyes disodium fluorescein and rhodamine B
  - Continued project from Montana State University
  - Projects utilized UVWinLab, CHARMM, ZINDO, GaussView, and Rasmol
- 2006 **Research Experience for Undergraduates**, Montana State University, Bozeman, MT.  
Advisor: Dr. Patrik Callis
- Investigated quantum mechanical/molecular mechanical simulations of the fluorescence quenching of *H*-type homodimers of fluorescein and tetramethyl rhodamine
  - Utilized CHARMM, ZINDO, GaussView, and Rasmol

- 2004–2005 **Applications Scientist Intern**, ChemImage, Corp., Johnstown, PA.  
Supervisor: Mrs. Tammy Powers, MS
- Validated CI Print Macroscopic Chemical Imaging System™ for detection of latent and patent fingerprints
  - Assisted in developing a Raman chemical database for identification purposes using the Falcon Molecular Chemical Imaging System™
  - Utilized ChemAcquire™, ChemAnalyze™ 7.0, ChemImage Xpert™

## TEACHING

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- 2014–present **Graduate Assistance in Areas of National Need (GAANN) Fellow**, University of Notre Dame, Notre Dame, IN.
- CHEM 30322—Physical Chemistry II—Primary Instructor (Spring 2014)
- Structured and gave lectures focusing on statistical mechanics, thermodynamics, and kinetics
  - Composed and administered homework assignments and exams
- 2007–2008;  
2013 **Teaching Assistant**, University of Notre Dame, Notre Dame, IN.
- CLASSES
- CHEM 12171—Introduction to Chemical Principles Tutorial (Fall 2013)
  - CHEM 21274—Chemistry Across the Periodic Table Laboratory (4th semester class for the health science majors) (Spring 2013)
  - CHEM 21284—Chemistry Across the Periodic Table Laboratory (4th semester class for the majors) (Spring 2008)
  - CHEM 31333—Analytical Chemistry Laboratory (Fall 2007)
- DUTIES
- Prepared labs
  - Gave pre-lab lectures
  - Graded lab reports, homework, and exams
  - Assisted students in lab
  - Facilitated student-led presentations of homework problems
  - Explained homework problems and concepts that students struggled with
- 2011–2012 **Visiting Laboratory Instructor**, Saint Francis University, Loretto, PA.
- CLASSES
- CHEM 202L—Organic Chemistry II Laboratory (Spring 2012)
  - CHEM 102L—Chemical Principles II Laboratory (Spring 2012)
  - CHEM 201L—Organic Chemistry I Laboratory (Fall 2011)
  - CHEM 301L—Physical Chemistry I Laboratory (Fall 2011)
- OTHER DUTIES
- Setup and prepared chemicals and experiments for CHEM 301L and CHEM 202L
  - Developed experiments for CHEM 102L
  - Performed instrument maintenance on various departmental instruments and installed a temperature controlled cell positioner for the Shimadzu UV-1800 spectrometer
  - Performed chemical inventory
  - Assisted with Science and the Art of Discovery, a week long science camp for high school students
  - Assisted with Open Houses and recruitment for Admissions
- 2010–2011 **Trigonometry Tutor**, Archbishop Carroll High School, Washington, DC.

- 2009–2010 **Substitute Lecturer**, Saint Francis University, Loretto, PA.
- CHEM 303—Instrumental Analysis—Introduction to Electrochemistry
  - CHEM 104—Human Chemistry II—Esters—Naming, Reactions, Saponification
  - CHEM 103—Human Chemistry I—Radiochemistry; Classification of Matter, Units, Conversions, Significant Figures
- 2008 **Lab Developer**, University of Notre Dame, Notre Dame, IN.
- Assisted in redesigning the lab experiments for CHEM 31333—Analytical Chemistry Laboratory
- May 16, 2007 **Guest Lecturer**, Bishop Guilfoyle High School, Altoona, PA.
- Toxic Substances: Poisons, Carcinogens, and Hazardous Materials
- 2005–2007 **Physics Review Session Leader**, Saint Francis University, Loretto, PA.
- Assisted students with homework problems
  - Explained problems and physics concepts
  - Proctored tests
- 2004–2007 **Undergraduate Teaching Assistant**, Saint Francis University, Loretto, PA.  
Supervisors: Mrs. Susan Dillon, Dr. Pedro Muíño, Fr. Nathan Malavolti, T.O.R., Ph.D.
- CLASSES
- CHEM 104L—Human Chemistry II Laboratory (General/organic/biochemistry laboratory for health science majors) (Spring 2005–Spring 2007)
  - CHEM 103L—Human Chemistry I Laboratory (General/organic/biochemistry laboratory for health science majors) (Fall 2004–Fall 2006)
- DUTIES
- Graded lab reports, homework, and tests
  - Assisted students in lab
  - Assisted with chemical inventory and cleanout
  - Prepared solutions for lab

## AWARDS & ACHIEVEMENTS

- 2014 **Striving for Excellence in College and University Teaching Certificate**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN. For completing five Striving for Excellence workshops and submitting a reflective essay.
- 2013 **Letter of Commendation for Excellent Teaching**, University of Notre Dame, Department of Chemistry and Biochemistry, Notre Dame IN. For good teaching technique, administrative skills, and experience in running an undergraduate laboratory for the Spring 2013 semester.
- 2008 **Outstanding Graduate Student Teacher Award for Excellence in Teaching**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 2007 **Who's Who Among Students in American Universities and Colleges.**
- 2006 **Named Barry M. Goldwater Scholar**, Barry M. Goldwater Scholarship and Excellence in Education Program.
- 2006 **Campus Ministry Award for Outstanding Service**, Saint Francis University, Loretto, PA.
- 2004 **Chemical Rubber Company Freshman Achievement Award**, Saint Francis University, Loretto, PA.

## PUBLICATIONS

- Oct 13, 2014 Johns, P.\*; Yu, K.\*; Devadas, M.S.; Li, Z.; Major, T.A.; Hartland, G.V. "Effect of substrate discontinuities on the propagating surface plasmon polariton modes in gold nanobars." *Nanoscale*, **6**, 14289-14296. \*These authors contributed equally to this work

Nov 10, 2013 Devadas, M.; Li, Z.; Major, T.; Lo, S.; Havard, N.; Yu, K.; Johns, P.; Hartland, G. "Detection of Single Gold Nanoparticles Using Spatial Modulation Spectroscopy Implemented with a Galvo-Scanning Mirror System." *Applied Optics*, **52**, 7806–7811.

## PRESENTATIONS

(\* Indicates presenting author)

- Oct 16, 2014 Johns, P.\*; Yu, K.; Devadas, M.S.; Li, Z.; Major, T.A.; Hartland, G.V. "Effects of Localized Dielectric Substrate Discontinuities on Surface Plasmon Polariton Modes in Gold Nanobars." IEEE Annual Mini-symposium on Electron Devices and Photonics, University of Notre Dame.
- Oct 07, 2014 Major, T.A.; Lo, S.S.; Devadas, M.S.; Li, Z.; Johns, P.\*; Yu, K. "Plasmonic Materials for Energy Applications: The Hartland Group" Energy Week, University of Notre Dame.
- Mar 05, 2007 Johns, P.\*; Callis, P.; Muñio, P. "Quantum Mechanical/Molecular Mechanical Simulations of the Fluorescence Quenching of H-Type Homodimers of Fluorescein and Tetramethyl Rhodamine." Presented at the 51<sup>st</sup> Biophysical Society Annual Meeting, Baltimore, MD.
- Feb 26, 2005 Schuler, R.\*; Exline, D.; Powers, T.; Johns, P.; Treado, P. "Validation of the CI Print Macroscopic Chemical Imaging System for the Analysis of Latent Fingerprints." Presented at the American Academy of Forensic Sciences 57<sup>th</sup> Annual National Meeting, New Orleans, LA.

## PROFESSIONAL DEVELOPMENT

### RESEARCH CONFERENCES

- 2014 IEEE Annual Mini-symposium on Electron Devices and Photonics, University of Notre Dame.
- 2007 The 51<sup>st</sup> Biophysical Society Annual Meeting, Baltimore, MD.
- 2005 Pittcon Conference & Expo, Orlando, FL.

### TEACHING WORKSHOPS AND CONFERENCES

- 27 Mar 2015 **Concept Mapping with VUE**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 26 Mar 2015 **Improving Teaching and Learning One Step at a Time**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 02 Mar 2015 **Fundamentals of Course Design IV: Lesson Planning**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 24 Feb 2015 **Fundamentals of Course Design III: Assessment and Exam Design**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 19 Feb 2015 **Fundamentals of Course Design II: Writing a Syllabus**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 11 Feb 2015 **Fundamentals of Course Design I: Developing Learning Goals**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 27 Jan 2015 **Presentation Zen**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- Dec 2014 **Statement of Accomplishment with Distinction: An Introduction to Evidence-Based Undergraduate STEM Teaching, MOOC**. Offered by Vanderbilt University through Coursera.
- 04 Nov 2014 **Mentoring Undergraduate Research in STEM Disciplines**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.

- 10 Oct 2014 **Effective Lecture Strategies**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 02 Oct 2014 **Teaching and Evaluating Oral Communication**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- Summer 2014 **Reading Group: *What the Best College Teachers Do* by Ken Bain**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 24 Mar 2014 **Developing Your Classroom Presence**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 06 Feb 2014 **Gathering Early Semester Student Feedback**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 21 Jan 2014 **Motivating Students: The Surprising Truth about What Works**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 10 Oct 2013 **Developing a Teaching Statement**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 08 Oct 2013 **Helping Students in Distress: Tips for Faculty and TAs**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 23 Aug 2013 **TA Orientation: Succeeding as a TA in Lab and Tutorial Settings**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 22 Aug 2013 **TA Orientation: Navigating Difficult Classroom Situations**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 22 Aug 2013 **TA Orientation: Approaching the 1st Day of Class and Setting the Tone for the Semester**, University of Notre Dame, Kaneb Center for Teaching and Learning, Notre Dame, IN.
- 29 July 2012–02 Aug 2012 **Biennial Conference on Chemical Education**, Pennsylvania State University, State College, PA.

## PROFESSIONAL ORGANIZATIONS

- 2005–present **American Chemical Society**, Graduate Student Member
- 2007–present **American Association for the Advancement of Science**, Graduate Student Member
- 2007 **Biophysical Society**, Student Member

## PROFESSIONAL SERVICE

- Mar 22, 2014; Mar 02, 2013 **2013 & 2014 Northern Indiana Regional Science & Engineering Fair Judge**, Elementary Physical Sciences Committee/Junior Physical Science Committee, University of Notre Dame, Notre Dame, IN.
- Nov 20, 2012; Nov 22, 2011 **18<sup>th</sup> and 19<sup>th</sup> Annual Science Day Presenter**, Saint Francis University, Loretto, PA.
- Presented “How Do You Explain These Mysteries and Miracles?” with Fr. Nathan Malavolti, T.O.R., Ph.D.
- Apr 23, 2012 **The Shroud of Turin: Medieval forgery or evidence for Resurrection? (A scientific look at the Shroud)**, Saint Francis University, Loretto, PA. A Community Enrichment Series Event.
- Nov 08, 2011 **Physical Science Lessons**, Penn-Mont Montessori School, Hollidaysburg, PA.
- Supervised students from CHEM 301L present science lessons to elementary school students
- 2010–2011 **Peer-reviewer for *Spectrum***, Saint Francis University, Loretto, PA.
- Reviewer for the peer-reviewed periodical published by Saint Francis University

- 2003–2009 **Rural Outreach Chemistry for Kids**, Saint Francis University, Loretto, PA.
- Led and performed scientific experiments with area elementary, middle, and high school students
- 2005 **Judge for the Pennsylvania Junior Academy of Science**, Pennsylvania State University, Altoona, PA Campus, Altoona, PA.
- Judged high school science fair presentations in the chemistry division for the local competition
- Nov 19, 2004 **11<sup>th</sup> Annual Science Day Student Presenter**, Saint Francis University, Loretto, PA.
- Presented “Fireworks, Projectiles, and Rainbows: What Chemists do for Fun” with Dr. Pedro Muíño, Emily Gehrlein, and Amy Miceli