

JOHN-DAVID R. ROCHA, PH.D.

(JUNE 2019)

School of Chemistry & Materials Science
College of Science
Rochester Institute of Technology
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ACADEMIC APPOINTMENTS

ROCHESTER INSTITUTE OF TECHNOLOGY	2012 – PRESENT
<i>Assistant Professor – School of Chemistry & Materials Science, College of Science</i>	
<i>Program Faculty – Materials Science & Engineering MS Program</i>	

RESEARCH AREAS AND INTERESTS

Physical chemistry, analytical chemistry, and materials science.

Research focus is in the area of nanotechnology, more specifically, in the use of nanomaterials (such as carbon nanotubes, graphenes, etc.) in energy, electronics, biomedicine, and the environment. Using primarily optical spectroscopic techniques (absorption, fluorescence, Raman) for materials characterization, fundamental understanding of nanomaterials chemistry is necessary to assist the chemical and engineering communities achieve highly desired next-generation products. Computational chemistry methods can also be employed for development of atomistic/molecular level understanding of novel nanomaterials prior to their experimental synthesis or their employment in desired application systems.

EDUCATION

PH.D., CHEMISTRY – <i>Rice University</i>	2008
<i>"Spectrofluorimetric analysis of single-walled carbon nanotubes: Instrumentation and applications,"</i> http://hdl.handle.net/1911/22133 , Advisor: R. Bruce Weisman.	
M.S., CHEMISTRY – <i>University of North Texas</i>	2002
B.S., CHEMISTRY – <i>University of North Texas</i>	1995

RESEARCH APPOINTMENTS

RESEARCH SCIENTIST – <i>SouthWest NanoTechnologies, Inc.</i>	2010 – 2012
POSTDOCTORAL RESEARCHER – <i>National Renewable Energy Laboratory, Chemical & Materials Science Center</i>	2008 – 2010
GRADUATE RESEARCH ASSISTANT – <i>Rice University, Department of Chemistry</i>	2003 – 2008
RESEARCH ASSISTANT – <i>University of North Texas – Department of Chemistry</i>	SUMMER 2001
GRADUATE RESEARCH ASSISTANT – <i>Rensselaer Polytechnic Institute, Department of Chemical Engineering</i>	1996 – 1998
UNDERGRADUATE RESEARCH ASSISTANT – <i>University of North Texas, Department of Chemistry</i>	1992 – 1995

FUNDING AWARDS (CURRENT/PENDING/COMPLETED)

Rochester Institute of Technology:

EXTERNAL:

- "High-purity carbon-based nanomaterials for next-generation environmental applications," PI: **J.-D. R. Rocha**, *Gordon Research Conference – Environmental Nanotechnology*, **Completed: \$765, June 2017**.
- "High-purity carbon-based nanomaterials for next-generation environmental applications," PI: **J.-D. R. Rocha**, *Gordon Research Conference – Carl Storm Underrepresented Minority Fellowship*, **Completed: \$600, June 2017**.
- "REU Site: Materials, application and development for organic photovoltaic devices," PI: C. J.

Collison, Senior Personnel: **J.-D. R. Rocha**, *National Science Foundation Division of Materials Research*, **Completed: \$329,997 / 3yrs, June 2015 – May 2018.**

INTERNAL:

- "Junior Faculty External Funding Success Club," J. Cody, L. Michel, M. Coleman, N. Eddingsaas, **J.-D. R. Rocha**, M. Gleghorn, *Provost's Office Faculty Mentoring Grant*, **Completed: \$1200, Nov 2016 – June 2017.**

- "Reimagining On-Chip Interconnections for Energy-Efficiency through Non-traditional Nano-Photonic Technologies," PIs: A. Ganguly, **J.-D. R. Rocha**, Z. Lu, J. Zhang, *RIT College of Engineering Dean's Office Materials Science Seed Fund*, **Completed: \$5000, August – Dec 2015.**

- "COMMENT: Communication and Outreach through Mentored Media Engagement and Networking Teams," PI: C. Babbitt, Co-PIs: K. Maki, M. Hoffman, **J.-D. R. Rocha**, *Advance@RIT Connect Grant*, **Completed: \$8000, May 2015 – July 2016.**

- "Junior Faculty External Funding Success Club," C. J. Collison, M. Coleman, J. Cody, N. Eddingsaas, L. Michel, **J.-D. R. Rocha**, *Provost's Office Faculty Mentoring Grant*, **Completed: \$2000, Jan 2015 – December 2015.**

- "Study of the synergy between carbon and boron-based nanomaterials through the development of an undergraduate computational chemistry course," PI: **J.-D. R. Rocha**, *Rochester Institute of Technology Grant Writer's Boot Camp Seed Funding*, **Completed: \$5000, March 2013 – June 2014.**

Funds pending (PI, co-PI, and/or Senior Personnel) = \$0

Internal = NONE, \$0

External = NONE, \$0 (*w/o match = N/A*)

Total funds requested (PI, co-PI, and/or Senior Personnel) = \$7,448,105

Internal = \$36,200,

External = \$7,411,905 (*w/o match = \$7,073,586*).

Funds awarded (PI, co-PI, and/or Senior Personnel) = \$353,862

Internal = \$21,200

1. Provost's Mentoring Grant (2016-2017) = \$1,200
2. KGCOE Dean's Office Materials Science Seed (2015) = \$5,000
3. Advance@RIT Connect Grant (2015-2016) = \$8,000
4. RIT Faculty Mentoring Grant (2014-2015) = \$2,000
5. RIT Grant Writer's Boot Camp (2013-2014) = \$5,000

External = \$332,662

6. 24th Institute on Teaching & Mentoring – Keynote Speaker (2017) = \$1300
7. Gordon Research Conference Registration Support Award (2017) = \$765
8. Carl Storm Underrepresented Minority Fellowship (2017) = \$600
9. NSF Materials Science REU Site (#DMR-1461063, 2015-2018) = \$329,997

Other Funds Pre-RIT:

"SWCNT Inks for Printing Thin Film Transistors," PI: **J.-D. R. Rocha** (SWeNT), Co-PIs: P. Wallis (SWeNT) and J. Zhang (Panasonic Boston Laboratory), *Oklahoma Center for the Advancement of Science and Technology (OCAST) Oklahoma Nanotechnology Applications Project FY11*, **Completed: \$500,000 / 2yrs (total project w/ matching funds = \$1,162,160), August 2011 – 2013.**

PATENTS

"Efficient Fluorimetric Analyzer for Single-Walled Carbon Nanotubes," R. B. Weisman, S. M. Bachilo, **J.-D. R. Rocha**, and J. P. Casey, U.S. Patent App. No. 11/281784 (2005), WO/2007/001461 (2007), U.S. Patent Pub. No. 2008/0014654 A1, (2008). Licensed by Applied NanoFluorescence, LLC, Houston, TX (www.appliednanofluorescence.com).

PUBLICATIONS (ORCID: 0000-0001-6394-4349 / RESEARCHERID: A-3186-2013)

Rochester Institute of Technology:

23. "Large boron nanostructures based on simple B₃, B₄, and B₇ building blocks," **J.-D. R. Rocha**, J. Beiter[‡], B. Catalano[‡], G. Curtin[‡], E. K. Snyder[‡], in preparation.
22. "Use of High-Purity Semiconducting SWCNT/P3HT dispersions in DHSQ(OH)₂:PC₇₁BM Photovoltaic Devices," **J.-D. R. Rocha**, B. Phelps[‡], M. Seitz[‡], D. Soika[‡], C. J. Collison, *Journal of Photovoltaics*, **2018**, in preparation.
21. "Computational studies of small B-based molecules from B to cyclic-B₇: an *ab initio* and density functional approximation study," **J.-D. R. Rocha**, B. T. Catalano[‡], G. M. Curtin[‡], D. C. Woods[‡], A. L. Dibble[‡], E. K. Snyder[‡], D. N. Vassileva[‡], *Physical Chemistry Chemical Physics*, **2018**, in preparation.
- §§§20.§§§ "Single-Walled Carbon Nanotube Separations Using Simple Metal Ionic Salt Additives in Gel-based Chromatography," **J.-D. R. Rocha**, R. F. Ashour[‡], L. M. Breindel[‡], R. C. Capasse[‡], B. Zeghum[‡], *ECS Journal of Solid State Science and Technology*, **6(6)**, M3148- M3154, **2017**, (DOI:10.1149/2.0261706jss).
- ###19.### "Highly Effective Adsorption of Organic Aromatic Molecules by Electronically Sorted Single-walled Carbon Nanotubes," **J.-D. R. Rocha**, R. Rogers, A. Dichiara, R. C. Capasse[‡], *Environmental Science: Water Research & Technology*, **3(2)**, 203-212, **2017**, (DOI: 10.1039/C6EW00284F).
18. "Spectroscopic Identification of Hydrogen Spillover Species in Ruthenium-modified High Surface Area Carbons by Diffuse Reflectance Infrared Fourier Transform Spectroscopy," J. L. Blackburn, C. Engtrakul, J. B. Bult, K. Hurst, Y. Zhao, Q. Xu, P. A. Parilla, L. J. Simpson, **J.-D. R. Rocha**, M. R. Hudson, C. M. Brown, T. Gennett, *J. Phys. Chem. C*, **116(51)**, 26744, **2012**, (DOI: 10.1021/jp305235p).
17. "Carbon Nanomaterial Commercialization: Lessons for Graphene from Carbon Nanotubes," D. Arthur, R. Prada Silvy, P. Wallis, Y. Tan, **J.-D. R. Rocha**, D. Resasco, R. Praino, W. Hurley, *MRS Bulletin*, **37(12)**, 1297, **2012**, (DOI: 10.1557/mrs.2012.276).

RIT student researcher co-authors: [‡] Graduate student, [‡] Undergraduate student

Other Prior:

- ~~###16###~~ "Efficient Spectrofluorimetric Analysis of Single-Walled Carbon Nanotube Samples," **J.-D. R. Rocha**, S. M. Bachilo, S. Ghosh, S. Arepalli, R. B. Weisman, *Anal. Chem.*, **83(19)**, 7431, **2011**, (DOI: 10.1021/ac2014788).
15. "High-Performance Hydrogen Production and Oxidation Electrodes with Hydrogenase Supported on Metallic Single-Walled Carbon Nanotube Networks," D. Svedruzic, J. L. Blackburn, R. C. Tenent, **J.-D. R. Rocha**, T. B. Vinzant, M. J. Heben, P. W. King, *J. Amer. Chem. Soc.*, **133(12)**, 4299, **2011**, (DOI: 10.1021/ja104785e).
14. "Self-Assembling Peptide Coatings Designed for Highly Luminescent Suspension of Single-Walled Carbon Nanotubes," D. A. Tsyboulski, E. L. Bakota, L. S. Witus, **J.-D. R. Rocha**, J. D. Hartgerink, R. B. Weisman, *J. Amer. Chem. Soc.*, **130(50)**, 17134, **2008**, (DOI: 10.1021/ja807224x).
13. "Structure-Dependent Reactivity of Semiconducting Single-Walled Carbon Nanotubes with Benzene Diazonium Salts," C. D. Doyle, **J.-D. R. Rocha**, R. B. Weisman, J. M. Tour, *J. Amer. Chem. Soc.*, **130(21)**, 6795, **2008**, (DOI: 10.1021/ja800198t).
12. "Structure-Dependent Fluorescence Efficiencies of Individual Single-Walled Carbon Nanotubes," D. A. Tsyboulski, **J.-D. R. Rocha**, S. M. Bachilo, L. Cognet, R. B. Weisman, *Nano Lett.*, **7(10)**, 3080, **2007**, (DOI: 10.1021/nl071561s).
- ~~***11***~~ "Stepwise Quenching of Exciton Fluorescence in Carbon Nanotubes by Single-Molecule Reactions," L. Cognet, D. A. Tsyboulski, **J.-D. R. Rocha**, C. D. Doyle, J. M. Tour, R. B. Weisman, *Science*, **316**, 1465, **2007** (DOI: 10.1126/science.1141316).

10. "Peptides That Non-covalently Functionalize Single-Walled Carbon Nanotubes to Give Controlled Solubility Characteristics," L. S. Witus, **J.-D. R. Rocha**, V. M. Yuwono, S. E. Paramonov, R. B. Weisman, J. D. Hartgerink, *J. Mater. Chem.*, **17**(19), 1909, **2007** (DOI: 10.1039/b700174f).
9. "Stabilization of a K⁺-(bis-cage-annulated 20-crown-6) Complex by Bidentate Picrate," A. P. Marchand, A. Hazlewood, Z. Huang, S. K. Vadlakonda, **J.-D. R. Rocha**, T. D. Power, K. Mlinaric-Majerski, L. Klaić, G. Kragol, J. C. Bryan, *Struct. Chem.*, **14**(3), 279, **2003** (DOI: 10.1023/A:1023863813356).
8. "Characterization of Reaction Pathways on the Potential Energy Surfaces for H + SO₂ and HS + O₂," A. Goumri, **J.-D. R. Rocha**, D. Laakso, C. E. Smith, P. Marshall, *J. Phys. Chem. A*, **103**(51), 11328, **1999** (DOI: 10.1021/jp9924070).
7. "The Gas-Phase Kinetics of Reactions of Alkali Metal Atoms with Nitric Oxide," A. Goumri, **J.-D. R. Rocha**, A. Misra, P. Marshall, *J. Phys. Chem. A*, **103**(46), 9252, **1999**, (DOI: 10.1021/jp992350h).
6. "Wide-Temperature Range Kinetics of the BO Reactions with O₂, HCl, and CO₂. Comparison to AlO Reactions," D. P. Belyung, G. T. Dalakos, **J.-D. R. Rocha**, A. Fontijn, *Symposium (International) on Combustion*, **27**(1), 227, **1998** (DOI: 10.1016/S0082-0784(98)80409-8).
5. "Kinetics of the Recombination Reaction SH + O₂ + Ar: Implications for the Formation and Loss of HSOO and SOO in the Atmosphere," A. Goumri, **J.-D. R. Rocha**, P. Marshall, *J. Phys. Chem.*, **99**(27), 10834, **1995** (DOI: 10.1021/j100027a025).
4. "Computational Studies of the Potential Energy Surface for O(³P) + H₂S: Characterization of Transition States and the Enthalpy of Formation of HSO and HOS," A. Goumri, D. Laakso, **J.-D. R. Rocha**, C. E. Smith, P. Marshall, *J. Chem. Phys.*, **102**(1), 161, **1995** (DOI: 10.1063/1.469387).
3. "Computational Studies of the Potential Energy Surface for O(¹D) + H₂S: Characterization of Pathways Involving H₂SO, HOSH, and H₂OS," A. Goumri, **J.-D. R. Rocha**, D. Laakso, C. E. Smith, P. Marshall, *J. Chem. Phys.*, **101**(11), 9405, **1994** (DOI: 10.1063/1.467971).
2. "Theoretical Studies of the RSOO, ROSO, RSO₂, and HOOS (R = H, CH₃) Radicals," D. Laakso, C. E. Smith, A. Goumri, **J.-D. R. Rocha**, P. Marshall, *Chem. Phys. Lett.*, **227**(4-5), 377, **1994** (DOI: 10.1016/0009-2614(94)00845-0).
1. "Investigation of the Gas-Phase Kinetics of the Reaction K + SO₂ + Ar," A. Goumri, D. Laakso, **J.-D. R. Rocha**, E. Francis, P. Marshall, *J. Phys. Chem.*, **97**(20), 5295, **1993** (DOI: 10.1021/j100122a020).

§§§ As of Sept 2017, article has been rated amongst the Top 35 most viewed papers for the *ECS J. of Solid State Sci. & Technol.* and contributed to making the JSS Focus Issue on Nanocarbons the most highly viewed issue of all ECS publications.

Selected as RSC Journal Cover Article. According to Altmetric, as of April 2017, this article Attention Score is rated amongst the Top 5% of all articles/publications/research outputs scored by their service. Also the article is ranked #1 amongst all research outputs from the journal *Environ. Sci.: Water Res. & Technol.*

☒☒☒ Cross-referenced citations are > 125 since 2007 noted by Applied NanoFluorescence, LLC (www.appliednanofluorescence.com as of 10/30/18).

*** As of March/April 2015, this **highly cited paper** received enough citations to place it in the **top 1%** of its academic field based on a highly cited threshold [≥ 215 cites] for the field [*Physics*] and publication year [2007 – 2011]. - Data from *Essential Science Indicators*SM.

Times Cited = 990/1324, h-index = 14/16, Avg. cites/item = 49.5/66.2
(*Web of Science/Google Scholar as of 06/19/19*)

STUDENT THESES/DISSERTATIONS

Master's Theses

- 1. Leonard M. Breindel** – Chemistry, RIT **August 2014**
 Title: *Single-walled Carbon Nanotubes Separated by Step-Gradient Gel Chromatography and New Instrumentation for Studying Their Kinetics*
- 1. Rakan F. Ashour** – Materials Science and Engineering, RIT **May 2014**
 Title: *Use of Alkali Metal Salts to Prepare High-purity Single-walled Carbon Nanotube Solutions and Thin Films*
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ORAL PRESENTATIONS

Invited

16. "NanoMaterials Spectroscopy: Shining 'Light' on the 'World'," *Franciscan University of Steubenville*, Steubenville, OH, **February 2019**.
15. "Nanomaterials: Scientific wonder or scientific fiction," *Rochester Science Café*, Pittsford, NY, **February 2018**.
14. "Keynote Address", *NY/NJ Metro 3rd Annual McNair Scholars Poster Conference & Graduate Fair*, New York, NY, **February 2018**.
13. "Welcome – Opening Session and Keynote Address," (with Dr. Lorrie Frasure-Yokley and Dr. Orlando Taylor), 24th Annual Meeting of the Compact for Faculty Diversity's *Institute on Teaching and Mentoring*, Atlanta, Georgia, **October 2017**.
12. "High purity carbon-based nanomaterials for next-generation environmental, electronics, and energy applications," School of Chemistry & Materials Science, *Rochester Institute of Technology*, Rochester, New York, **March 2017**.
11. "Using near-infrared spectrofluorimetric analysis toward production and applications of high purity metallic and semiconducting single-walled carbon nanotube samples," Department of Chemistry, *Buffalo State College*, Buffalo, New York, **2015**.
10. "Using near-infrared spectrofluorimetric analysis toward production and applications of high purity metallic and semiconducting single-walled carbon nanotube samples," School of Physics and Astronomy, *Rochester Institute of Technology*, Rochester, New York, **2014**.
9. "Understanding Separation and Functionalization Processes of High Purity Semiconducting SWCNTs via Spectrofluorimetric Kinetic Analysis," *NanoTechnology for Defense Conference (NT4D) 2013*, Tucson, Arizona, **2013**.
8. "Understanding Single-Walled Carbon Nanotube Production and Applications Through Spectrofluorimetric Analysis", Department of Chemistry, *State University of New York at Oswego*, Oswego, New York, **2013**.
7. "Understanding Single-Walled Carbon Nanotube Production and Applications Through Spectrofluorimetric Analysis," Department of Chemistry, *University at Buffalo - The State University of New York*, Buffalo, New York, **2013**.
6. "Understanding Single-Walled Carbon Nanotube Production and Applications Through Spectrofluorimetric Analysis," Department of Chemistry, *Wellesley College*, Wellesley, Massachusetts, **2013**.
5. "Spectroscopic Analysis of Single-Walled Carbon Nanotubes," Department of Chemistry, *Rochester Institute of Technology*, Rochester, New York, **2012**.
4. "Spectroscopic Analysis of Single-Walled Carbon Nanotubes," *SouthWest NanoTechnologies, Inc.*, Norman, Oklahoma, **2010**.
3. "Spectrofluorimetric Analysis of Single-Walled Carbon Nanotubes," *National Renewable Energy Laboratory*, Golden, Colorado, **2007**.
2. "Spectrofluorimetric Analysis of Single-Walled Carbon Nanotubes," Department of Chemistry, *Rochester Institute of Technology*, Rochester, New York, **2007**.
1. "Biological and Environmental Nanotechnology – Panel Discussion," *UMET-MIE XV Undergraduate Research Symposium*, San Juan, Puerto Rico, **2004**.

Contributed

19. "Adsorption of organic aromatic molecules from aqueous environments by electronically sorted SWCNTs," *254th ACS National Meeting*, Washington, DC, **August 2017**.
 18. "Highly Effective Adsorption of Organic Aromatic Molecules by Electronically Sorted Single-walled Carbon Nanotubes," (Presented by R. Rogers), *251st American Chemical Society National Meeting*, San Diego, California, **2016**.
 17. "Nanomaterials/Astrochemistry," *One Universe at a Time*, Podcast hosted by Dr. Brian Koberlein (<https://briankoberlein.com/2015/04/04/nanomaterialsastrochemistry/>), **2015**.
 16. "Separation of Single-Walled Carbon Nanotubes Using Alkali Metal Ionic Salts," (Presented by R. Ashour), *247th American Chemical Society National Meeting*, Dallas, Texas, **2014**.
 15. "Understanding Single-Walled Carbon Nanotube Separations and Chemical Functionalization Using Near-Infrared Spectrofluorimetric Analysis," (Presented by L. Breindel), *247th American Chemical Society National Meeting*, Dallas, Texas, **2014**.
 14. Selected for ACS Presentations on Demand – "Spectrofluorimetric Kinetic Studies of High Purity Single-walled Carbon Nanotube Solutions Separated by Centrifugation and Gel Chromatography," *246th American Chemical Society National Meeting*, Indianapolis, Indiana, **2013**, (<http://presentations.acs.org/common/default.aspx>)
 13. "Understanding Single-Walled Carbon Nanotube Production and Applications Through Spectrofluorimetric Analysis," School of Chemistry & Materials Science, *Rochester Institute of Technology*, Rochester, New York, **2012**.
 12. "High-Throughput Detection of Hydrogen Sorption on Carbon-based Materials using Raman and Infrared Spectroscopies," *239th American Chemical Society National Meeting*, San Francisco, California, **2010**.
 11. "Steady-State and Time-Resolved Photoluminescence of Length Separated Single-Walled Carbon Nanotube Aqueous Suspensions," *238th American Chemical Society National Meeting*, Washington, DC, **2009**.
 10. "High-Throughput Detection of Hydrogen Sorption on Carbon-based Materials using Raman Spectroscopy," *2009 Materials Research Society Spring Meeting*, San Francisco, California, **2009**.
 9. "Efficient Fluorimetric Analysis of Single-Walled Carbon Nanotubes," *62nd Southwest Regional Meeting of the American Chemical Society*, Houston, Texas, **2006**.
 8. "Recent Progress in Efficient Fluorimetric Analysis of Single-Walled Carbon Nanotubes," *209th Meeting of the Electrochemical Society*, Denver, Colorado, **2006**.
 7. "Real-Time Fluorimetric Analysis of Single-Walled Carbon Nanotubes," *2005 SACNAS National Conference*, Denver, Colorado, **2005**.
 6. "Efficient Fluorimetric Analysis of Single-Walled Carbon Nanotube Samples," (presented by R. Bruce Weisman), *207th Meeting of the Electrochemical Society*, Quebec City, Canada, **2005**.
 5. "Analysis of SWNT Optical Spectra," *205th Meeting of the Electrochemical Society*, San Antonio, Texas, **2004**.
 4. "Wide-Temperature Range Kinetics of the BO Reactions with O₂, HCl, and CO₂. Comparison to AlO Reactions," (presented by A. Fontijn), *27th Symposium (International) on Combustion*, Boulder, Colorado, **1998**.
 3. "Wide-Temperature Range Studies of BO and BO₂ Reactions," (presented by A. Fontijn), *4th International Conference on Chemical Kinetics*, Gaithersburg, Maryland, **1997**.
 2. "Kinetics of BO Reactions with O₂, HCl, and CO₂," *14th Northeast Regional Meeting on Chemical Kinetics and Dynamics*, Amherst, MA, **1996**.
 1. "Gas-Phase Kinetics of the Reactions of Na and K + NO," *American Chemical Society - Dallas/Ft. Worth Section Meeting-in-Miniature*, Fort Worth, Texas, **1994**.
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POSTER PRESENTATIONS

16. "From B atoms to small B_x clusters and beyond," (Presented by B. Catalano and G. Curtin), 254th ACS National Meeting, Washington, DC, **August 2017**.
15. "High-purity carbon-based nanomaterials for next-generation environmental applications," *Gordon Research Conference – Environmental Nanotechnology*, Stowe, VT, **June 2017**.
14. "Building up Boron Nanomaterials: From B to B₂₄ and Beyond," (Accepted, did not present), 252nd American Chemical Society National Meeting, Philadelphia, PA, **August 2016**.
13. "Computational Studies of Pathways Toward the Growth of Small Boron and Boron-Carbon Nanomaterials," (Presented by D. Woods and A. Dibble), 249th American Chemical Society National Meeting, Denver, Colorado, **2015**.
12. "Fast and Efficient Spectrofluorimetric Kinetic Studies of Semiconducting SWCNT Solutions Separated by Centrifugation and Gel Chromatography," (Presented by R. Ashour), 2013 Materials Research Society Fall Meeting, Boston, Massachusetts, **2013**.
11. "Development of Instrumentation for the Fast Kinetic Analysis of Single-Walled Carbon Nanotube Chemical Reactions," (Presented by L. Breindel), 246th American Chemical Society National Meeting, Indianapolis, Indiana, **2013**.
10. "Large-Scale Production of Chirality-Controlled, High-Purity Single-Walled Carbon Nanotubes for Use in Printable Electronics," *NanoTechnology for Defense Conference (NT4D) 2012*, Summerlin, Nevada, **2012**.
9. "Room-temperature study of hydrogen adsorption on carbon-based nanomaterials using diffuse reflectance infrared spectroscopy," 240th American Chemical Society National Meeting, Boston, Massachusetts, **2010**.
8. "Optical spectroscopy investigations of carbon-based nanomaterials for fundamental energy sciences research," Academic Employment Initiative, 240th American Chemical Society National Meeting, Boston, Massachusetts, **2010**.
7. "Optical Spectroscopy Investigations of Carbon-Based Nanomaterials for Fundamental Energy Sciences Research," 2009 SACNAS National Conference, Dallas, Texas, **2009**.
6. "Steady-State and Time-Resolved Photoluminescence of Length Separated Single-Walled Carbon Nanotube Aqueous Suspensions," Academic Employment Initiative, 238th American Chemical Society National Meeting, Washington, DC, **2009**.
5. "High-Throughput Combinatorial Screening of Biomimetic Metal-organic Materials for Military Hydrogen-storage Applications," U.S. Department of Energy (DOE) Hydrogen Program and Vehicle Technologies Program Annual Merit Review and Peer Evaluation Meeting, Arlington, Virginia, **2009**.
4. "Stepwise Quenching of Exciton Fluorescence in Carbon Nanotubes by Single-Molecule Reactions," *NanoDays 2007*, Houston, Texas, **2007**.
3. "Instrumentation for Real-Time Fluorimetric Analysis of Single-Walled Carbon Nanotubes," (presented by R. Bruce Weisman) *NASA/Rice University 2nd Workshop on Nucleation and Growth of Single-Wall Carbon Nanotubes*, Guadalupe River Ranch, Boerne, Texas, **2005**.
2. "Instrumentation for Real-Time Fluorimetric Analysis of Single-Walled Carbon Nanotubes," (presented by R. Bruce Weisman) *2nd NASA-NIST Workshop on Measurement Issues in Single Wall Carbon Nanotubes: Purity and Dispersion*, Gaithersburg, Maryland, **2005**.
1. "Instrumentation for Real-Time Fluorimetric Analysis of Single-Walled Carbon Nanotubes," *NanoDays 2004*, Houston, Texas, **2004**.

TEACHING EXPERIENCE

ROCHESTER INSTITUTE OF TECHNOLOGY:

MTSE-705 *Experimental Techniques*
 CHEM-155 *Chemistry Workshop*
 CHMP-753 *Computational Chemistry*

SPRING 2018 – PRESENT
 2015 – PRESENT
 2013 – PRESENT

CHMP-442 <i>Physical Chemistry II</i>	2014 – 2018
CHMG-123 <i>Chemistry of Materials Laboratory</i>	SPRING 2017
CHEM-142 <i>General Chemistry Lecture & Recitation</i>	SPRING 2015
CHEM-799 <i>Independent Study – Adv. Physical Chemistry</i>	SPRING 2014
CHEM-130 <i>Chemistry Connections Laboratory</i>	FALL 2014
1014-447 <i>Chemical Kinetics Laboratory</i>	SPRING QTR 2013
1014-442 <i>Quantum Chemistry</i>	WINTER QTR 2012
1028-899 <i>Independent Study – Quantum Chemistry for Mat. Sci. Eng.</i>	WINTER QTR 2012

OTHER PRIOR:

<i>Teaching Assistant – Department of Chemistry, Rice University</i>	2003 – 2005
<i>Chemistry Teacher – Skyline High School and Career Development Center (Dallas, TX)</i>	1999 – 2003
<i>Assistant Director – University of North Texas Upward Bound Math & Science</i>	2001 – 2002
<i>Chemistry / Mathematics Instructor – UNT UBMS</i>	1998 – 2002
<i>Mathematics Teacher – Renaissance Charter School (Irving, TX)</i>	1998 – 1999
<i>Teaching Assistant – Department of Chemistry, Rensselaer Polytechnic Institute</i>	1997 – 1998
<i>Science / Mathematics Tutor – UNT Student Support Services - Discovery</i>	1994 – 1995
<i>Science / Mathematics Tutor – UNT Upward Bound</i>	1993 – 1995

ADVISORY/MENTOR POSITIONS

ROCHESTER INSTITUTE OF TECHNOLOGY (*Masters = 3, Undergrads = 27[REU = 4], HS = 2*):

Present:

None

Alumni:

Nicholas Schug – Chemistry, MS	2018 – 2019
Matthew Bonney – Chemistry, BS	2018 – 2019
Jeriann Beiter – Chemistry, BS	2017 – 2019
Emma Snyder – Biochemistry, BS	2016 – 2019
Dana Soika – Biotechnology, BS	2017 – 2018
Jacob Zito – Chemistry, Freshman	2017 – 2018
Aubrey Holland – Chemistry, Freshman	2017 – 2018
Jason Reff – Chemistry, Sophomore	2016 – 2018
Saunders Riley – Chemistry, Sophomore	2016 – 2018
Gregory Curtin – Chemistry, BS	2014 – 2018
John Cofield – Chemistry, BS	2014 – 2018
Sabrina Hogan – Chemistry, BS	2014 – 2018
Benjamin Catalano – Chemistry, BS	2014 – 2018
Luis Madera – Chemistry, McNair Scholar, Junior	Summer 2017
Matthew Seitz – Materials Science REU Student, Physics, <i>University of Washington</i>	Summer 2017
Maarja Paul – Materials Science REU Student, <i>RIT-NTID</i>	Summer 2017
Riccardo Torsi – Materials Science REU Student, Physics, <i>Boise State University</i>	Summer 2016
Tabitha Benavides – NTID Lab Science Tech, AS	2016
Darina Vassileva – Chemistry, BS	2015 – 2016
Lauren Knappenberger – Chemistry, Junior	2015 – 2016
James Lane – Chemistry, BS	2014 – 2017
Amber Kudla – Chemistry, BS	2014 – 2017
Daniel Honeycutt – Chemistry, BS	2014 – 2015
Austin Hammond – Project SEED Scholar – <i>School of the Arts HS, Rochester CSD</i>	Summer 2015
Mecca Wright – Materials Science REU Student, Chemistry, <i>SUNY-Potsdam</i>	Summer 2015
Dustin Woods – Chemistry, MS Thesis mentee	2013 – 2015
Ryan Capasse – Chemistry, BS	2012 – 2015
Anthony Cannella – Chemistry, BS	2014 – 2015

J.-D. R. Rocha, Ph.D.	9/11
Bilal Zeghum – Chemistry, BS	2014 – 2015
Alyssa Dibble – Chemistry, BS	2012 – 2015
Caleb Whittier – ACS Project SEED Scholar – <i>School of the Arts HS, Rochester CSD</i>	Summer 2013
Rakan Ashour – Materials Science Engineering, MS	2012 – 2014
Leonard Breindel – Chemistry, MS	2012 – 2014
Mikhail Solomonik – Chemistry, BS	2012 – 2014
SOUTHWEST NANOTECHNOLOGIES (<i>Total = 4 undergraduates</i>):	
William Campbell – Student Intern – Chem. Engineering – <i>Univ. of Oklahoma</i>	2012
Adam Reitz – Student Intern – Chem. Engineering – <i>Univ. of Oklahoma</i>	2011 – 2012
Robert Headrick – Student Intern – Chem. Engineering – <i>Univ. of Oklahoma</i>	2010 – 2012
Chase Brown – Student Intern – Chem. Engineering – <i>Univ. of Oklahoma</i>	2010 – 2012
OTHER PRIOR (<i>Total = 2 undergraduates</i>):	
Melanie Connick – MentorNet.com – Chem. Engineering – <i>Univ. of New Mexico</i>	2011
Yannick Ndikum – Summer REU – <i>Harris County Community College</i>	2006

HONORS AND AWARDS

RIT:

Keynote Speaker – <i>NY/NJ 3rd Annual McNair Scholars Poster Conference & Graduate Fair</i>	February 2018
Opening & Keynote Session, Highlighted Co-presenter – <i>COMPACT for Faculty Diversity 24th Institute on Teaching and Mentoring</i>	October 2017
BBC World Newsday Radio Interview	March 2017
RIT News Highlight	March 2017
Journal Cover Article – <i>Environmental Science: Water Research & Technology</i> , Royal Society of Chemistry	March 2017
Research Article in Focus Issue Honoring Sir Harry Kroto <i>in memoriam</i> – <i>ECS Journal of Solid State Science & Technology</i> , Electrochemical Society: Carbon Nanomaterials Group	February 2017
Highlighted in Emerging Investigators Series – <i>Environmental Science: Water Research & Technology</i> , Royal Society of Chemistry	January 2017
Featured in “University of North Texas’ 125 th Anniversary,” <i>Denton-Record Chronicle</i> on behalf of The Mayborn School of Journalism at the University of North Texas	September 2015
Guest Speaker – Faculty Student Association of SUCB – <i>Buffalo State College</i>	2015
Featured in “A 20-Year March Toward the Dream,” <i>The Institute on Teaching and Mentoring, Southern Regional Education Board (SREB)</i>	2013

Prior to RIT:

Postdoc to Faculty Workshop (selected, did not attend) – <i>American Chemical Society</i>	2010
Building Future Faculty (BFF) Program Scholar – <i>North Carolina State University</i>	2009
Featured in “Discovering the Future: TAMS graduates help achieve national science, research goals,” <i>The North Texan</i> – Publication of the UNT Alumni Association	2008
Predoctoral Fellowship – <i>Robert A. Welch Foundation</i>	2007
Future Faculty Career Exploration Program (FFCEP) Scholar – <i>Rochester Institute of Technology</i>	2007
CBEN Civic Science Scholar - <i>Rice University Center for Biological & Environmental Nanotechnology</i>	2007
SREB Program Scholar - <i>Southern Regional Education Board Compact for Faculty Diversity Institute on Teaching & Mentoring</i>	2005 – 2007
Minority Ph.D. Program Scholar - <i>Alfred P. Sloan Foundation</i>	2003 – 2007
AGEP Graduate Research Fellowship - <i>National Science Foundation</i>	2003 – 2006
Travel Award - <i>SACNAS National Convention</i>	2005
Best Poster Award - <i>Rice University CBEN NanoDays</i>	2004
Summer Teacher Research Award - <i>Texas Higher Education Coordinating Board</i>	2001
Faculty for the Future Award - <i>Rensselaer Polytechnic Institute & General Electric</i>	1997 – 1998
Undergraduate Research Scholar - <i>Robert A. Welch Foundation</i>	1995

J.-D. R. Rocha, Ph.D.	10/11
Outstanding Undergraduate Research Award - ACS-Dallas/Ft. Worth Section	1994
Research Scholar – UNT Ronald E. McNair Post-Baccalaureate Achievement Program	1993 – 1995
Alumni Scholarship Award - Texas Academy of Mathematics and Science	1993 – 1995
Summer Research Scholar Award - TAMS & UNT	1992

PROFESSIONAL SERVICE

Institutional:

RIT Howard Hughes Medical Institute Inclusive Excellence – Faculty Liaison (SCMS) and Research Mentor	Fall 2018 – present
RIT Ronald E. McNair Post-Baccalaureate Achievement Program – Mentor	2017 – 2019
Men of Color, Honor, and Ambition (MOCHA) – Mentor, RIT Division for Diversity & Inclusion	2016 – present
School of Chemistry & Materials Science – COS Honors Representative	2016 – present
I'm First – Mentor, RIT Division for Diversity & Inclusion	2015 – present
SCMS Materials Science & Engineering Steering Committee	2015 – present
SCMS Curriculum Committee	2013 – present
Office of Faculty Recruitment – Future Faculty Career Exploration Program Planning Committee and 'Straight Talk' Panelist	2013 – present
School of Chemistry & Materials Science Physical Chemistry Team	2012 – present
COS Women in Science (WiSe) – ImagineRIT Committee	2013 – 2014
Faculty Search & Selection Process Review Task Force – New Faculty Hiring Focus Group	2014
Grant Writing Boot Camp Proposal Review Panel – RIT Sponsored Research Services	2014, 2015
Panel member – "Voices from the Field," Kate Gleason College of Engineering & GEM Consortium RIT GRADLab	2013
SCMS Materials Science & Engineering Committee – Future of MS & E Subcommittee	2012 – 2013

External:

American Chemical Society – PHYS & ANYL divisions, Member	1993 – present
Materials Research Society	2009 – present
American Association for the Advancement of Science	2007 – present
Society for the Advancement of Chicanos and Native Americans in Science	2005 – present
The Electrochemical Society	2003 – present
Technical Planning Committee and Session Chair (Materials Synthesis & Scale-up of NanoMaterials to Industrial Scale) for NanoTechnology for Defense Conference	2013 – 2014

Peer-reviewer:

ACS Applied Nano Materials, ACS Applied Materials & Interfaces, Analytical Chemistry, Journal of the American Chemical Society, Nano Letters, The Journal of Physical Chemistry B/C, Chemical Physics, Journal of Photovoltaics, Environmental Pollution

PROFESSIONAL LEADERSHIP POSITIONS

American Chemical Society Colorado Section – Chair, Younger Chemists Committee	2008 – 2010
Rice University CBEN Student Leadership Council – Senior Coordinator	2005 – 2007
Rice University Chemistry Department – Chemistry Graduate Recruiting Committee	2005 – 2008
Rice University Chemistry Graduate Student Association – Webmaster	2006 – 2007
Rice University CBEN Student Leadership Council – Education Coordinator	2003 – 2005
Rice-Houston Alliances for Graduate Education and the Professoriate – Graduate Student Recruitment	2005 – 2008
Dallas Independent School District – Secondary Science Textbook Selection Committee	2002
Renaissance Charter School – Lead Mathematics Teacher	1999

COMMUNITY SERVICE

Willowbend Neighborhood Association, Brighton, NY	2013 – present
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Council #11411 – St. Damien of Molokai, Knights of Columbus, Brighton, NY 2012– present
Trustee (2016 - 2019); Grand Knight (2014 - 2016); Deputy GK (2013 - 2014); Council Degree Team (2013-2017)

****Family of the Year, Knights of Columbus Council #11411, July 2016 ****

St. Thomas More / Our Lady Queen of Peace Catholic Community, Brighton, NY 2012 – present
Junior High Faith Formation & Senior High Youth Group (since 2017), On-Site Coordinator (2017); Pastoral Council (elected 2015 - 2018); Sacristan & Liturgical Minister (since 2012); Faith Formation (K, 1st, 3rd & 4th grade) Catechist (2013 - 2016)

Brighton Central School District, Parent/Teacher/Student Association, Brighton, NY 2012 – present
Parent volunteer in classroom as reader, math and science helper, Brighton Blueprint Committee (2017)

Girls Scouts Troop 63003, Brighton, NY – Girl Scouts of Western New York 2013 – 2015
Parent volunteer assisting with operation of meetings and sponsored events