Philip P. Rodenbough, Ph.D.

Lecturer of Writing (Graduate/STEM) at New York University Abu Dhabi & Freelance Scientific Consultant
Curriculum Vitae – Updated 4/2018

Contact

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Education

Columbia University in the City of New York — New York NY USA
Ph.D. in Materials Chemistry — June 2016
DISSERTATION: CRYSTALLITE SIZE DEPENDENCY OF THE PRESSURE & TEMPERATURE RESPONSE IN NANOPARTICLES OF CERIA & OTHER OXIDES
M.A. in Chemistry — May 2013

University of Washington – Seattle — Seattle WA USA
B.S. in Chemistry, ACS Certified, College Honors — December 2008
B.A. in Biochemistry, Minor in Philosophy, College Honors — December 2008

Academic Postings

Lecturer of Writing (Graduate/STEM) — Abu Dhabi UAE
New York University Abu Dhabi — January 2018 onward
• Scientific writing course development & tutorial-consultations for graduate students

Postdoctoral Teaching Fellow — Cairo Egypt
The American University in Cairo — August 2017 – December 2017
• Teaching scientific thinking & general chemistry courses

Postdoctoral Associate — Abu Dhabi UAE
New York University Abu Dhabi — September 2016 – August 2017
• Materials science research in chemistry department & undergraduate chemistry lab teaching

Graduate Student Research Assistant — New York NY USA
Columbia University in the City of New York — September 2011 – June 2016
• Integrated program featuring teaching, coursework, examination, and original research
• M.A. project: designed, synthesized, and evaluated novel polymeric materials for organic electronics
• Ph.D. project: prepared and characterized series of oxide nanoparticles for use in clean energy technologies

High School Chemistry Teacher — Guinea & Burkina Faso, West Africa
United States Peace Corps — July 2009 – July 2011
• Taught full semesters of high school chemistry and general science, in French, in rural West Africa
• Repaired, re-opened, and managed school computer lab for students and staff at Lycée Kourita de Koupéla

Research Scientists / Engineer Assistant — Seattle WA USA
University of Washington – Seattle — February 2009 – June 2009
• Designed high-throughput enzyme assays for malaria drug candidates

	Undergraduate Student Research Assistant	Seattle WA USA
	University of Washington – Seattle	June 2005 – December 2008
	• Worked on projects in enzymology, synthetic organic chemistry, and immunology	

Recent Projects	Editorial Associate | *Materialia* (Acta Materialia, Inc. / Elsevier)	Spring 2018 – present
	• Coordinating editor role, preliminary scientific evaluations of new submissions & peer-review organization	
	MITx Course Development Specialist | MIT Office of Digital Learning	Academic Year 2017/2018
	• Developing materials science & engineering courses & pedagogy for the EdX-MITx online course platform	
	Co-Founder | Chemistry on Computers in Kenya Project	Academic Years 2016/2017/2018
	• Managing funds from the Materials Research Society Foundation to develop digital chemistry pedagogy tools	
	Fellow | Columbia Technology Ventures	Spring 2014 – Spring 2016
	• Assessed invention disclosures, communicated cutting-edge science to generalists, ran social media campaigns	
	Executive Advisor | AKOU Fashion	Spring 2013 – Spring 2016
	• Entrepreneurial collaboration with NYC-based Ivoirian designer, managing rising fashion business	
	Associate | In On Africa (formerly Consultancy Africa Intelligence)	Spring 2015
	• Research and writing with a focus on West Africa, science & technology, and human rights	
	Academic Admin Intern | Office of Government and Community Affairs	Spring 2014 – Spring 2015
	• Supported science outreach, grant management, and science communication at Columbia University	
	Virtual Student Foreign Service | US State Department	Fall 2013 – Spring 2015
	• Authored original advisory documents about West & Central Africa for US Agency for International Development	

Awards, Service, & Leadership	Postdoctoral Council Leader, New York University Abu Dhabi	Academic Year 2016/2017
	Runner-up: Materials Research Society Foundation fund competition	Fall 2016
	Fellow of JUAMI: The Joint US-Africa Materials Institute	Summer 2016
	Steering Committee, Columbia Graduate Student Advisory Council	Academic Year 2015/2016
	Columbia Graduate Consulting Club 2015 Competition team leader	Summer 2015
	Conference Travel Awards from Gordon Research Conferences	Summer 2015
	GSAC Service Award for outstanding dedication to student life	Spring 2015
	SciFinder® Future Leader in Chemistry Award	Summer 2014
	Conference Travel Awards from NOGLSTP	Summer 2014
	Teagle Foundation Teaching Fellowship for interdisciplinary pedagogy	Academic Year 2013/2014
	Honorable Mention, NSF & Ford Foundation fellowship competitions	Spring 2012
	Faculty Fellowship, Chemistry Department of Columbia University	Academic Years 2011-2016
	Washington NASA Space Grant Consortium SURP Award	Summer 2008
	Mary Gates Research Scholarship	Academic Year 2007/2008

Academic Publications *(PEER-REVIEWED)*

[12] Rodenbough, P. P.; Karothu, D. P.; Gjorgjieva, T.; Commins, P.; Hara, H.; Naumov, P. Reversible Photolysis of Nitrosobenzene *cis*-Dimer Monitored In Situ by Single Crystal Photocrystallography. *Cryst. Growth Des.* **2018**, *18* (3), 1293-1296. doi:10.1021/acs.cgd.8b00031.

[11] Rodenbough, P. P.; Chan, S.-W. Thermal Oxygen Exchange Cycles in Mixed Manganese Perovskites. *Ceram. Int.* **2018**, *44* (2), 1343-1347. doi:10.1016/j.ceramint.2017.08.168.

[10] Rodenbough, P. P.; Chan, S.-W. Crystallite-Size Dependency of the Pressure and Temperature Response in Nanoparticles of Magnesia. *J. Nanopart. Res.* **2017,** *19* (7), 241. doi:10.1007/s11051-017-3922-7.

[9] Rodenbough, P. P.; Lipatov, M.; Chan, S-W. Crystallite Size Dependency of Thermal Expansion in Ceria Nanoparticles. *Mater. Chem. Phys.* **2017**, *192*, 311-316. doi:10.1016/j.matchemphys.2017.01.031.

[8] Rodenbough, P. P.; Zheng, C.; Liu, Y.; Hui, C.; Xia, Y.; Ran, Z.; Hu, Y.; Chan, S.-W. Lattice Expansion in Metal Oxide Nanoparticles: MgO, Co_3O_4 , & Fe_3O_4. *J. Am. Ceram. Soc.* **2016**, *100* (1), 384-392. doi:10.1111/jace.14478.

[7] Song, J.; Rodenbough, P. P.; Zhang, L.; Chan, S.-W. Size-Dependent Crystal Properties of Nanocuprite. *Int. J. Appl. Ceram. Technol.* **2016**, *13* (2), 389–394. doi:10.1111/ijac.12486.

[6] Rodenbough, P. P.; Vanti, W. B.; Chan, S.-W. 3D-Printing Crystallographic Unit Cells for Learning Materials Science and Engineering. *J. Chem. Educ.* **2015**, *92* (11), 1960–1962. doi:10.1021/acs.jchemed.5b00597.

[5] Song, J.; Rodenbough, P. P.; Xu, W.; Senanayake, S. D.; Chan, S.-W. Reduction of Nano-Cu_2O: Crystallite Size Dependent and the Effect of Nano-Ceria Support. *J. Phys. Chem. C* **2015**, *119* (31), 17667–17672. doi:10.1021/acs.jpcc.5b04121.

[4] Rodenbough, P. P.; Song, J.; Walker, D.; Clark, S. M.; Kalkan, B.; Chan, S.-W. Size Dependent Compressibility of Nano-Ceria: Minimum near 33 nm. *Appl. Phys. Lett.* **2015**, *106* (16), 163101. doi:10.1063/1.4918625.

[3] Wei, S.; Xia, J.; Dell, E. J.; Jiang, Y.; Song, R.; Lee, H.; Rodenbough, P.; Briseno, A. L.; Campos, L. M. Bandgap Engineering through Controlled Oxidation of Polythiophenes. *Angew. Chemie Int. Ed.* **2014**, *53* (7), 1832–1836. doi:10.1002/anie.201309398.

[2] Crowther, G. J.; Napuli, A. J.; Gilligan, J. H.; Gagaring, K.; Borboa, R.; Francek, C.; Chen, Z.; Dagostino, E. F.; Stockmyer, J. B.; Wang, Y.; Rodenbough, P. P.; … Kuhen, K. L. Identification of Inhibitors for Putative Malaria Drug Targets among Novel Antimalarial Compounds. *Mol. Biochem. Parasitol.* **2011**, *175* (1), 21–29. doi:10.1016/j.molbiopara.2010.08.005.

[1] Crowther, G. J.; He, P.; Rodenbough, P. P.; Thomas, A. P.; Kovzun, K. V; Leibly, D. J.; Bhandari, J.; Castaneda, L. J.; Hol, W. G. J.; Gelb, M. H.; Napuli, A. J.; Van Voorhis, W. C. Use of Thermal Melt Curves to Assess the Quality of Enzyme Preparations. *Anal. Biochem.* **2010**, *399* (2), 268–275. doi:10.1016/j.ab.2009.12.018.

General Publications

[5] "Scientific research in Africa: More than an economic boost." *Polity ZA*. July 8th, 2015. [link]

[4] "Geothermal power in Kenya is heating up." *In On Africa (formerly Consultancy Africa Intelligence)*. April 15th, 2015. [link]

[3] "LGBT Nigeria: One year after the Same-Sex Marriage Prohibition Act." *Polity ZA*. March 20th, 2015. [link]

[2] "On Being LGBT in West Africa." *RightsViews: Opinion and research from the human rights community at Columbia University.* March 6th, 2015. [link]

[1] "Peace through Chemistry." *inChemistry Magazine*. February/March 2014 issue. Cover story. Pp 12-14. [link]

Academic Conferences

[13] University of KwaZulu-Natal: Health, Economics, and HIV/AIDS Research Division (HEARD) Workshop on Conducting HIV/AIDS Research in Challenging Environments. Oral presentation: Reflections on the West African Context. Invited speaker.	Durban South Africa February 19th, 2018
[12] 9th International Conference of the African Materials Research Society. Oral presentation: Learning Chemistry on Computers in African Contexts. Travel award winner.	Gaborone Botswana December 11th – 14th, 2017
[11] American Chemical Society Meeting. Oral presentation: Chemical X-Ray Photodiffraction for Structural Characterization of Short-Lived Intermediates. Travel award winner.	San Francisco CA USA April 2nd – 6th, 2017
[10] Ras al-Khamiah Center for Advanced Materials: International Workshop on Advanced Materials (IWAM). Conferee.	Ras al-Khaimah UAE February 19th – 21st, 2017

	[9] Joint US-Africa Materials Institute Conference. Conferee/Fellow. Travel award winner.	Arusha Tanzania May 30th – June 10th, 2016
	[8] American Association for the Advancement of Science 2016 Annual Meeting: Global Science Engagement. Poster presentation: Thermal Cycles of Perovskite Manganese Oxides for Syngas Production.	Washington DC USA February 14th, 2016
	[7] Materials Research Society. Poster presentation: Size-Dependence of Bulk Modulus for Nanoceria.	Boston MA USA November 30th, 2015
	[6] American Association for the Advancement of Science: Science and Human Rights Coalition Meeting on Business and Human Rights. Poster presentation: Peace through Chemistry. Student poster competition finalist.	Washington DC USA July 16th, 2015
	[5] Synchrotron Radiation Instrumentation 2015 Conference. Poster presentation: Size-Dependence of Bulk Modulus for Nanoceria.	New York NY USA July 6th – 10th, 2015
	[4] Gordon Research Conference on Chemistry Education Research & Practice: Chemistry Education as an Agent in Global Progress. Poster presentation: Peace through Chemistry. Travel award winner.	Lewiston ME USA June 21st – 26th 2015
	[3] NOGLSTP: Out to Innovate Conference. Conferee. Travel award winner.	Atlanta GA USA November 7th – 9th 2014
	[2] American Chemical Society Meeting. Conferee. Travel award winner.	San Francisco CA USA August 10th – 15th, 2014
	[1] Inaugural Pacific Northwest Undergraduate Research Symposium on Organic Chemistry and Chemical Biology. Poster presentation: Synthesis and Study of Small-Molecule Inhibitors of Secreted Phospholipase A2.	Corvallis OR USA August 11th, 2008
Press	[3] NYUAD Chemist Helps Bring Digital Courseware to Schools in Kenya. NYUAD Press Release. [link]	February 2017
	[2] Grassroots Grant Recipients 2016. Materials Research Society Foundation Press Release. [link]	December 2016
	[1] #PoetweetsNYC winners announced. Metro. [link]	April 2015
Teaching	Course Developer: Scientific Writing, NYU Abu Dhabi, UAE	Spring 2018
	Lecturer: Writing Center, NYU Abu Dhabi, UAE	Spring 2018
	Instructor: Scientific Thinking SCI 1020, AUC, Egypt	Fall 2017
	Instructor: General Chemistry CHEM 1005, AUC, Egypt	Fall 2017
	TA: Foundations of Science 3 & 4 Lab, NYU Abu Dhabi, UAE	Fall 2016
	Consultant/Tutor: tech start-up CEO, NY, USA	Summer 2016
	TA: General Chemistry I, Barnard College, NY, USA	Fall 2015
	TA: Organic Chemistry Lab, Columbia University, NY, USA	Summer 2013, Spr. 2012, Fall 2011
	Fellow: Teagle Teaching Foundation, Columbia University, NY, USA	Academic Year 2013/2014
	TA: Organic Chemistry II, Columbia University, NY, USA	Spring 2014
	TA: General Chemistry I, Columbia University, NY, USA	Spring 2013
	Teacher: Chemistry, Lycée de Yembering, Guinea	Academic Year 2010/2011
	Teacher: English, Lycée de Yembering, Guinea	Academic Year 2010/2011
	Instructor: English, US Embassy English Program, Burkina Faso	Summer 2010
	Teacher: Chemistry, Lycée Kourita de Koupéla, Burkina Faso	Academic Year 2009/2010
	Teacher: Computer Literacy, Lycée Kourita de Koupéla, Burkina Faso	Academic Year 2009/2010

Affiliations

American Chemical Society (ACS)
CHEMISTRY INTERNATIONAL / INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY (IUPAC) US-AFFILIATE
NEW YORK LOCAL SECTION
CHEMICAL EDUCATION DIVISION
Materials Research Society (MRS)
American Crystallographic Association (ACA)
INTERNATIONAL UNION OF CRYSTALLOGRAPHY (IUCR) REGIONAL ASSOCIATE SOCIETY
AMERICAN INSTITUTE OF PHYSICS (AIP) MEMBER SOCIETY
AFRICAN CRYSTALLOGRAPHY INITIATIVE – SUPPORTER
American Ceramic Society (ACerS)
BASIC SCIENCE DIVISION
EDUCATION AND PROFESSIONAL DEVELOPMENT COUNCIL
American Association for the Advancement of Science (AAAS)
CHEMISTRY, EDUCATION, & SOCIETAL IMPACTS SECTIONS
Council of Science Editors (CSE)
International Writing Centers Association (IWCA)

Invited Reviewer
- *Journal of Chemical Education* (ACS)
- *Journal of Applied Crystallography* (IUCr)
- *Crystals* (MDPI)

Languages

English: Native speaker
French: Full professional fluency
Arabic: Active learner
Indigenous West African Languages: Some small talk skills