

Carmen J. Giunta

Le Moyne College
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EDUCATION

Ph.D., Harvard University, Chemical Physics (1989).
M.A., Harvard University, Physics (1984).
B.S., University of Scranton, Chemistry, *summa cum laude* with honors (1982).

RESEARCH AND TEACHING EXPERIENCE

Le Moyne College, Department of Chemistry, Syracuse, NY (1990-)
Professor Emeritus (2019-)
Professor (2004-2019) and **Chair** (2014-2017)
Associate Professor (1996-2004) and **Chair** (1998-2003)
Assistant Professor (1990-1996)

Courses: physical chemistry; introductory chemistry; “Energy and Environment” and “Scientific Thought” for non-science majors. Research interests: history of chemistry, including applications to chemistry education; kinetic modeling of chemical vapor deposition. Created and maintain “Classic Chemistry” website on history of chemistry (<http://web.lemoyne.edu/giunta/>).

Harvard University, Department of Chemistry, Cambridge, MA (1989-1990)
Post-Doctoral Research Fellow with Prof. Roy G. Gordon

Kinetic modeling studies of the chemical vapor deposition (CVD) of undoped and fluorine-doped tin oxide films from organotin compounds and O₂. Methodology is applicable to other CVD systems and to atmospheric and combustion chemistry.

Harvard University, Department of Chemistry, Cambridge, MA
Graduate Research Assistant to Prof. Roy G. Gordon (1985-1989)

Dissertation title: *Detailed kinetic modeling of the chemical vapor deposition of silicon dioxide and tin oxide films*. Computer modeling of two-dimensional reaction-diffusion with critical evaluation of available thermochemical and kinetic parameters, addressing fundamental questions of chemical mechanism as well as practical relationships of deposition rates to process control parameters.

Teaching Fellow

Fundamentals of Physics and Chemistry (Integrated introductory course with classroom instruction by section leaders) with Profs. Roy G. Gordon, Daniel Goroff, Dudley R. Herschbach, and David Layzer (1989-1990); Physical chemistry (Undergraduate quantum mechanics), under Prof. William Klemperer (1988); Graduate level statistical mechanics, under Prof. Roy Gordon (1985); General chemistry (summer school), under Dr. Ronald E. Vanelli (1983).

GTE Laboratories, Waltham, MA (1981, 1982)

Student Research Assistant to Dr. Leonard J. Andrews

University of Scranton, Department of Chemistry, Scranton, PA (1981-1982)

Undergraduate Honors Thesis Research; mentor: Prof. Robert A. Sallavanti

Undergraduate thesis title: *Computer programs for equilibrium calculations on polybasic acids and mixtures of acids.*

AWARDS

Friend of Gender & Women's Studies Award 2020 from the Gender & Women's Studies program of Le Moyne College.

Paul R. Jones Outstanding Paper Award 2017 from the ACS Division of the History of Chemistry for "the best paper published in the *Bulletin for the History of Chemistry*" in 2015 to 2017.

Syracuse Section Award 2008 from the Syracuse Section of ACS "in recognition of his outstanding contributions in promoting the advancement of chemistry."

ACS Divisional Activities Committee: funding for organizing symposium, "The Rise and Fall of Chlorofluorocarbons," at 229th ACS National Meeting, March 2005.

Camille and Henry Dreyfus Foundation Special Grant Program in the Chemical Sciences: proposal to write "Quantitative exercises based on classic chemistry papers" funded in 2002.

Norman Hackerman Young Author Award from the Electrochemical Society for the best paper published by a young author in Solid-State Science and Technology in the society's Journal in 1990.

Supercomputer Grant, National Center for Supercomputing Applications (1989-1990). Grant of 15 service units on a Cray X-MP/48 to pursue kinetic modeling of fluorine-doped tin oxide films.

National Science Foundation Graduate Fellowship (1982-1985). Grant of tuition and stipend funds for graduate studies, awarded on the basis of academic merit.

SCHOLARLY APPOINTMENTS

Bulletin for the History of Chemistry, Editor (2011-)

Associate Editor (2004-2010)

Foundations of Chemistry, Coordinating Editor (for history of chemistry), (2001-2008)

PROFESSIONAL AND HONORARY SOCIETIES

American Chemical Society (1982-): active in Syracuse Section (education committee, 1993-2009, committee chair 1995-96; section treasurer 1997-2001, 2006-2009; chair elect 2005; chair 2006); Division of the History of Chemistry (alternate councilor 2002-2007; councilor 2008-2010; editor 2011-); and national committees (National Historical Chemical Landmarks, consultant 2008-2009, 2019, member 2010-2018, 2020-; Committee on Divisional Activities, associate 2008, member 2009-2010; Committee on Nomenclature, Terminology, and Symbols, associate 2008, member 2009-2019)

Sigma Xi (scientific research society, 1982-)

Alpha Sigma Nu (national Jesuit honor society, 1981-)

Phi Lambda Upsilon (national chemistry honor society, 1981-)

PUBLICATIONS (peer-reviewed only; book reviews and conference presentations are available on request)

L. J. Andrews, A. Lempicki, B. C. McCollum, C. J. Giunta, R. H. Bartram, and J. F. Dolan, "Thermal quenching of chromium photoluminescence in ordered perovskites. I. Temperature dependence of spectra and lifetimes," *Physical Review B* **34**, 2735-2740 (1986).

Jonathan D. Chapple-Sokol, Carmen J. Giunta, and Roy G. Gordon, "Kinetics of silicon oxide thin film deposition from silane and disilane with nitrous oxide," *Material Research Society Symposium Proceedings* **105**, 127-132 (1988).

Jonathan D. Chapple-Sokol, Carmen J. Giunta, and Roy G. Gordon, "A kinetics study of the atmospheric pressure CVD reaction of silane and nitrous oxide," *Journal of the Electrochemical Society* **136**, 2993-3003 (1989).

Carmen J. Giunta, Richard J. McCurdy, Jonathan D. Chapple-Sokol, and Roy G. Gordon, "Gas phase kinetics in the atmospheric pressure chemical vapor deposition of silicon from silane and disilane," *Journal of Applied Physics* **67**, 1062-1075 (1990).

Carmen J. Giunta, Jonathan D. Chapple-Sokol, and Roy G. Gordon, "Kinetic modeling of the chemical vapor deposition of silicon dioxide from silane or disilane and nitrous oxide," *Journal of the Electrochemical Society* **137**, 3237-3253 (1990).

Anthony G. Zawadzki, Carmen J. Giunta, and Roy G. Gordon, "Kinetic modeling of the chemical vapor deposition of tin oxide from tetramethyltin and oxygen," *Journal of Physical Chemistry* **96**, 5364-5379 (1992).

Carmen J. Giunta, David A. Strickler, and Roy G. Gordon, "Kinetic modeling of the chemical vapor deposition of tin oxide from dimethyltin dichloride and oxygen," *Journal of Physical Chemistry* **97**, 2275-2283 (1993).

- Carmen J. Giunta, "Using History to Teach Scientific Method: the Case of Argon," *Journal of Chemical Education* **75**, 1322-1325 (1998).
- Carmen J. Giunta, "J. A. R. Newlands' Classification of the Elements: Periodicity, but no System," *Bulletin for the History of Chemistry* **24**, 24-31 (1999). A Philosophical Commentary on this article by Eric Scerri, *This Journal* **26**, 124-129 (2001); response to Commentary, *This Journal* **26**, 130-132 (2001).
- Carmen J. Giunta, "Using History to Teach Scientific Method: the Role of Errors," *Journal of Chemical Education* **78**, 623-627 (2001).
- Carmen J. Giunta, "Argon and the Periodic System: the Piece that Would not Fit," *Foundations of Chemistry* **3**, 105-128 (2001).
- Carmen J. Giunta, "Dulong and Petit: a case of scientific misconduct?," *Bulletin for the History of Chemistry* **27**, 62-71 (2002).
- P. W. Atkins, C. A. Trapp, M. P. Cady, C. J. Giunta, *Instructor's Solutions Manual for Physical Chemistry, Sixth Edition and Student Solutions Manual for Physical Chemistry, Sixth Edition*, Oxford: Oxford University Press, 1998; Seventh Edition, 2002; Eighth Edition, 2006; Ninth Edition, 2010; Tenth Edition, 2014.
- Carmen J. Giunta, "Thomas Midgley, Jr., and the Invention of Chlorofluorocarbon Refrigerants: It Ain't Necessarily So," *Bulletin for the History of Chemistry* **31**, 66-74 (2006)
- Carmen J. Giunta, "Looking ahead: Keeping history of chemistry relevant to the future of chemistry," *Bulletin for the History of Chemistry* **32**, 98-103 (2007)
- Seth C. Rasmussen, Carmen Giunta, Misty R. Tomchuk, "Content Standards for the History and Nature of Science," in Stacey Lowery Bretz, Ed., *Chemistry in the National Science Education Standards, Second edition* (Washington: American Chemical Society Education Division, 2008), pp. 79-87.
- Charles Trapp, Marshall Cady, and Carmen Giunta, *Instructor's Solutions Manual for Quanta, Matter, and Change and Student Solutions Manual for Quanta, Matter, and Change*, Oxford: Oxford University Press and New York: W. H. Freeman, 2009; Second Edition, 2014.
- Carmen J. Giunta, *Atoms in Chemistry: From Dalton's Predecessors to Complex Atoms and Beyond* (Washington: American Chemical Society, 2010). Part of ACS Symposium Series. Editor of volume and author of chapter, "Atoms Are Divisible: The Pieces Have Pieces," pp 65-81.

- Carmen J. Giunta, "Historical Chemists in Fiction," in Seth C. Rasmussen and Gary Patterson, Eds., *Characters in Chemistry: A Celebration of the Humanity of Chemistry* (Washington: American Chemical Society, 2013), pp 129-142. Part of ACS Symposium Series.
- Carmen J. Giunta, "Flights of Fancy: World Heritage and Other Sites in Egypt, China, Peru, and Mexico," in Mary Virginia Orna, Ed., *Science History: A Traveler's Guide* (Washington: American Chemical Society, 2014), pp 353-372. Part of ACS Symposium Series.
- Carmen J. Giunta, "The Mole and Amount of Substance in Chemistry and Education: Beyond Official Definitions," *Journal of Chemical Education* **92**, 1593-1597 (2015).
- Carmen J. Giunta, "What's in a Name? Amount of Substance, Chemical Amount, and Stoichiometric Amount," *Journal of Chemical Education* **93**, 583-586 (2016).
- Carmen J. Giunta, "Dmitri Mendeleev's Nobel-prize-losing Research," in E. Thomas Strom and Vera V. Mainz, Eds., *The Posthumous Nobel Prize in Chemistry. Volume 1. Correcting the Errors and Oversights of the Nobel Prize Committee* (Washington: American Chemical Society, 2017), pp 31-49. Part of ACS Symposium Series.
- Carmen J. Giunta, "Isotopes: Identifying the Breakthrough Publication," *Bulletin for the History of Chemistry* **42**, 103-111 (2017).
- Carmen J. Giunta, "Insights into the Chemical and Pedagogical Philosophy of Stanislao Cannizzaro from his Faraday Lecture," in Gary Patterson, Ed., *Preceptors in Chemistry* (Washington: American Chemical Society, 2018), pp 149-162. Part of ACS Symposium Series.
- G. J. Leigh and Carmen J. Giunta, "The Scientific Publications of Alexander Marcet," *Bulletin for the History of Chemistry* **43**, 61-78 (2018).
- Carmen J. Giunta and James L. Marshall, Places of the Periodic Table [annotated online map], https://www.google.com/maps/d/viewer?mid=1Xey19Nt9afpdL6wc1ysM_ZNhKQpQ5ilv&ll=28.563083397360366%2C-38.502264702109414&z=2 (2018).
- Carmen J. Giunta, "What Chemistry Teachers Should Know about the Revised International System of Units (Système International)," *Journal of Chemical Education* **96**, 613-617 (2019).
- Carmen J. Giunta, "A Survey of History of Chemistry by Chemists," *Bulletin for the History of Chemistry* **44**, 18-31 (2019).

Carmen J. Giunta, “Watt’s in a name? Units of Power and Energy,” *Substantia* **3**, Suppl. 1, 13-26 (2019). doi: 10.13128/Substantia-403

Carmen J. Giunta and Vera V. Mainz, “Discovery of Nuclear Magnetic Resonance: Rabi, Purcell, and Bloch,” in E. Thomas Strom and Vera V. Mainz, Eds, *Pioneers of Magnetic Resonance* (Washington: American Chemical Society, 2020), pp 1-20. Part of ACS Symposium Series.

References, reprints, and preprints are available upon request.