

Maria Caridad Gelabert

Curriculum Vitae

Associate Professor
Department of Chemistry, Physics and Geology
Winthrop University
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(803) 323-4939

- Objective** To obtain employment in chemistry education utilizing skills in teaching and course development, student research, related academic administration, written and oral communication within an organization and to the general public, utilizing an excellent grant-writing record and strong knowledge base in nanotechnology, the environment, crystal growth and structure of materials
- Education** Ph.D. 1997 Cornell University, Ithaca, New York (Physical/Solid State Chemistry)
Thesis: Synthesis, Structure and Substitution of Layered Ternary Sulfides
M.S. 1993 Cornell University, Ithaca, New York (Physical/Solid State Chemistry)
M.S. 1991 University of Houston, Houston, Texas (Physics)
B.S. 1989 Southwestern University, Georgetown, Texas (Physics, Chemistry)
- Ethnicity** United States with Cuban ancestry – fluent in Spanish

Professional and Community Experience

- 2012-present Associate Professor of Chemistry, Winthrop University, Rock Hill, South Carolina
Courses: *Physical Chemistry* lecture and lab
Research: Hydrothermal synthesis of ZnO and related materials, aqueous speciation calculations, compound optical microscopy with digital imaging, nanoparticle synthesis, seeded growth of transition metal sulfates
- 2009-2010 Intern with Tom Emge, X-ray Facility, Department of Chemistry/Chemical Biology
Visiting Scholar with Richard Riman, Department of Materials Engineering
Sabbatical Award at Rutgers, State University of New Jersey, Piscataway, New Jersey
• Four-circle single crystal and powder diffraction (Philips, Bruker) for Wagner College research and Rutgers X-ray facility samples
• Structure determination with Bruker-SHELX, WinGX suite, FullProf
• Instrument maintenance and area detector standardization
- 2005-2012 Associate Professor of Chemistry, Wagner College, Staten Island, New York
Courses: *Physical Chemistry* lecture and lab, *General Chemistry* lecture, first-year reflective tutorial *Science: the Good, the Bad and the Controversial*, *Chemistry in the Environment and Society* (online), *Color Science* lecture, *Senior Reflective Tutorial*
New Courses: special topics *Materials*, *Color and Light*, *Color Science* lab, special topics *Solid State Chemistry*, special topics *Chemistry and Technology*, special topics *Women in the History of Science*
Research: Hydrothermal synthesis of ZnO and related materials, aqueous speciation calculations, compound optical microscopy with digital imaging, crystallography, X-ray diffraction, seeded growth of transition metal sulfates, theatre and art lab development for *Color Science*
Award: NSF-SGER #DMR-0632789 *Directed Hydrothermal Growth and Photoluminescence of ZnO Crystals* \$121840, 2006-2008.

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Award: NSF-CCLI #DUE-0632931 *Multidisciplinary Laboratory Exercises for a Color Science Course* \$106150, 2007-2009.

Award: Exceptional Performance in Scholarship, Wagner College 2005

Award: Anonymous Donor Research Grant, Wagner College, 2005, 2006, 2008 and 2009

Award: Faculty Aid Award, Wagner College, 2005

- research mentor to 18 undergraduate students
- Chair, Department of Chemistry and Physics, 2005-2010
- Academic Policy Committee, 2005-2007
- Director, Gender Studies Minor, 2008-present
- Chair, Megerle Oversight Board, 2009-2010
- member, Environmental Studies Minor faculty committee, 2005-present
- author and editor, *Chemistry Programs* and *The Minor in Gender Studies* brochures
- author and editor of *Chemistry Corner*, an annual departmental newsletter, 2004-2009
- Faculty writer, “Will the Earth Heal Itself?”, *The Wagner Magazine*, Fall 2011

2004 “Forest of Fun”, Staten Island Waterfront Festival

- civic projects for environmental awareness as part of a first-year seminar

1999-2004 Assistant Professor of Chemistry, Wagner College, Staten Island, New York

Courses: *Physical Chemistry* lecture and lab, *General Chemistry* lecture and lab, *Chemistry in the Environment and Society*, *Senior Reflective Tutorial*, *Quantitative Analysis* lecture and lab, *Advanced Inorganic Chemistry* lecture

New Courses: First-year reflective tutorial *Clarifying Claims: the Strange, the Creative and the Toxic*, *Color Science* lecture

Research: Hydrothermal synthesis of ZnO, optical microscopy, seeded growth of transition metal sulfates, crystal growth of potassium dihydrogen phosphate, precipitation of transition metal sulfides

Award: ACS-PRF Type G *Hydrothermal Crystal Growth of Oxide Materials* \$25000, 2001-2003

Award: Faculty Aid, Wagner College, 2000, 2002 and 2004

Award: Faculty Research Award, Wagner College, 2004

Award: Megerle Research Grant, Wagner College, 2002

- extensive development of physical chemistry lab
- development of general chemistry lab
- research mentoring to 10 undergraduate students
- Academic Policy Committee, 2004-2005
- Academic Review Committee, 2000-2003
- Gender Studies minor director, 2000-2003
- First Year Program coordinator, 2001-2003
- inaugural member, Environmental Studies Minor faculty committee, 2003-2004
- Faculty writer, environment articles for *The Wagnerian*, 2001
 - “The Profits and Caveats of Cahoots”, “The Circle of Life”, “Plastic or...Plastic?”, “Don’t Forget to Breathe”

1999-2003 National Chemistry Week, Liberty Science Center, Jersey City, New Jersey

- organized activities and volunteers to represent Wagner College
- 2003 worked with student chemistry club to develop “Breath Bubbles”

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- 2000, and 2001 organized first year students to develop demonstrations on bread baking, taste buds, ice cream making and bubbles.
 - 1999 demonstrated polymers by making goofy putty, using glue to draw pictures and making bracelets out of plastic beads and lanyard
- 1998 Adjunct Professor, Department of Science and Math, Fashion Institute of Technology, New York, New York
Courses: *Mathematical Ideas, College Algebra*
- 1997-1998 Postdoctoral Associate with Richard Riman, Department of Ceramic Engineering, Rutgers the State University of New Jersey, Piscataway, New Jersey
Technical Consultant with Robert Laudise, Bell Laboratories, Lucent Technologies, Murray Hill, New Jersey
- hydrothermal crystal growth of ferroelectric materials (Parr digestion vessels)
 - high-pressure experiments (Tem-pres autoclaves) for solubility and phase studies
 - X-ray powder diffraction and field-emission scanning electron microscopy
- 1997-1998 MAD Science network, an internet-based question-answer forum
- 1996 Visiting Scientist with Raymond Brec and Philippe Deniard
Institut des Matériaux de Nantes, Nantes, France
- temperature-dependent powder X-ray diffraction studies of $\text{Ba}_6\text{Ni}_{25}\text{S}_{27}$
- 1995-1996 Chemistry Day at the Mall, sponsored by ACS, Pyramid Mall, Ithaca, New York
- 1993-1995 Expanding Your Horizons Workshop, a Cornell-sponsored program for middle school girls in Tompkins County, New York
- planned and conducted a two-hour experiment for three girls, titled "Preparation of Fluorescent ZnS Doped with Cu^{2+} "
 - assisted in materials workshop, co-chaired polymer workshop
 - acted as a "buddy" for 2 girls, escorting them to and from workshops
- 1991-1997 Graduate Research Assistant with Francis J. DiSalvo, Department of Chemistry, Cornell University, Ithaca, New York
- extensive high temperature solid state synthesis and crystal growth using flux and melt methods, with machine shop experience
 - handling of air- and water-sensitive materials
 - maintenance of cryogenic equipment and handling liquid nitrogen and helium
 - Faraday balance and resistivity apparatus measurements
 - synthesis, characterization and substitution studies of alkaline earth ternary sulfides
 - maintenance of X-ray powder diffractometer
 - supervision of undergraduate research in solid state chemistry
- 1991-1993 Teaching Assistant, Department of Chemistry, Cornell University, Ithaca, New York
Courses: *General Chemistry Laboratory, General Chemistry Recitation, Inorganic Chemistry*
Award: Department of Energy Teaching Fellowship, Cornell University 1992
Award: DuPont Teaching Award, Department of Chemistry 1994
- 1989-1991 Graduate Research Assistant with John H. Miller, Texas Center for Superconductivity at the University of Houston, Houston, Texas
- high-temperature powder synthesis and SEM with cathodoluminescence
 - data acquisition programming in LabView graphical software

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Award: Texas Center for Superconductivity (TCSUH) Student Seminar Award 1991

Award: Delta Zeta Graduate Scholarship 1989, 1990

1989-1991 Teaching Assistant, Department of Physics, University of Houston, Houston, Texas
Courses: *General Physics Laboratory, Honors General Physics Recitation*

1989 APS Summer Intern with Richard L. Woodin, Exxon Research and Engineering, Annandale, New Jersey

- conversion of mass spectrometer FORTRAN codes for to LabView software

1987-1989 Research Assistant with Robert Roeder Department of Physics, Southwestern University, Georgetown, Texas

- programming in FORTRAN 77 for power spectrum analysis of quasars

Award: Physics Gold Eagle Award 1989

Award: American Physical Society Summer Internship Award 1989

1987-1989 Research Assistant with Robert Soulen, Department of Chemistry, Southwestern University, Georgetown, Texas

- measurement of first-order rate constants of hydrolysis of fluoroacetates

Professional Affiliations

American Chemical Society

American Association for Crystal Growth

Recent Scholarly Review

Journal of Crystal Growth

Journal of the American Ceramic Society

Journal of the Physics and Chemistry of Solids

Recent Conferences and Presentations (*student presentations)

Faculty Resource Network, New York University, June 2011

“The Material World” seminar and laboratory on holography, polymers, packing, lithography and crystal growth, adaptable to teaching lab, classroom, demonstration venues and variable education levels

ACS National Meeting, August 2009

Invited Oral Presentation: "Multidisciplinary Laboratory Exercises in Art and Theatre for Color Science", *NSF-Catalyzed Innovations in the Undergraduate Curriculum*

ACS National Meeting, March 2009

Oral Presentations: “Low Temperature Hydrothermal Crystal Growth of ZnO”; "Learning Communities and Growth of a Chemistry Major"

*Poster: Katelyn Frenis, "Controlled Hydrothermal Growth of ZnO Using Chelating Ligands and Modifiers", in *Undergraduate Research at the Frontiers of Inorganic Chemistry*

Middle Atlantic Regional Meeting of the ACS, May 2008

Oral Presentations: “Low Temperature Hydrothermal Crystal Growth of ZnO”, "Color Science Laboratory Exercises in Art and Theatre"

*Platform: Lindsay Lucas and Thomas Gut, "Hydrothermal Growth of Zinc Oxide Utilizing Aqueous Speciation Calculations" (Undergraduate Research Symposium)

Invited Oral Presentation: American Association for Crystal Growth, Dinner, November 2007

"Low Temperature Hydrothermal Crystal Growth: PbTiO₃ and ZnO"

International Conference for Crystal Growth, August 2007

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Platform: "The Role of Aqueous Chemistry in the Hydrothermal Crystal Growth of ZnO"
Eastern Colleges Science Conference, April 2007

*Platform: Jennifer Hart, "Hydrothermal Growth of Zinc Oxide Crystals"
Gordon Research Conference, Solid State Chemistry, June 2006

Poster: "Effects of Ethylenediamine-based Ligands on ZnO Hydrothermal Crystal Growth"
Gordon Research Conference, Thin Films and Crystal Growth Mechanisms, June 2005 and July 2007

Personal Certificates

Registered Hatha Yoga Teacher 2010, Integral Yoga Institute, Buckingham, Virginia

2010-2012 Yoga Teacher, New York, New York

- Weekly community yoga class by donation, Wagner College, Staten Island, NY
- Substitute and regular yoga classes, Shakti Yoga Center and College of Staten Island, Staten Island, NY, and Integral Yoga Institute, New York, NY
- Member of Integral Yoga Teachers Association and YogaAlliance

Hobbies Running, collage design and digital technology, hiking, gardening, cooking, music, guitar