Curriculum Vitae
Pupa Gilbert
(née Gelsomina De Stasio)

Personal
Citizenships : American (2007), Italian
Date of birth : September 29, 1964

APS Member # 60003786 (since 1990)
AAAS Member # 09932607 (since 2000)
MRS Member # 265038 (since 2008)
ACS Member # 30130319 (since 2010)
MSA Member # 31099 (since 2010)
AGU Member # 000265219 (since 2013)
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Education
Doctoral Degree in Physics (Laurea), First University of Rome "La Sapienza", 1987. Dissertation: "Design and construction of the synchrotron beamline PLASTIQUE for time resolved fluorescence in the frequency domain. Testing of parinaric acid to probe the structure and dynamics of cell membranes." Advisors: Filippo Conti and Tiziana Parasassi.

Additional classes taken:
Stable Isotope Geochemistry (GE 140) Winter 2021, at Caltech, taught by John Eiler, the best living isotope geochemist in the world. I took this course on Zoom during the pandemic.

Geobiology and the history of life (EPS 181) Fall 2014, and Historical Geobiology (EPS 56) Spring 2015, both at Harvard University, both taught by Andrew H. Knoll, the best paleontologist in the world. I took these courses in-person at Harvard, when I was there on sabbatical with a prestigious Radcliffe Fellowship.

Positions Held (current in red)
- **September 2025-present: Faculty Advisor for GMaWiP (Gender Minority and Women in Physics), a very active RSO (Registered Student Organization) at UW-Madison.**
- **September 2024-present: John D. Wiley professor of physics at UW-Madison.**
- 2020-2025: member of the Editorial Board for *MRS Bulletin Impact*.
- **August 28, 2019-2025: Visiting Faculty Scientist, Lawrence Berkeley National Labolatory, Berkeley, CA.**
- October 2018-2025 Vilas Distinguished Achievement Professor, UW-Madison, WI.
- January 2018-January 2021: Member of the Scientific Advisory Committee, Advanced Light Source, LBNL, Berkeley, CA.
- **Fall 2016-present: Professor (0% appointment), Geoscience Department, UW-Madison.**
- Summer 2016: Radcliffe Fellow, Harvard University.
- 2014-2015: Radcliffe Fellow, Harvard University.

- **Principal Investigator of the Approved Program (AP) "Spectromicroscopy of calcium carbonate ($CaCO_3$) systems", guaranteeing 7% of the available beamtime on beamline 11.0.1.1, PEEM-3, Advanced Light Source, Berkeley, CA. 2024-2027**. Previous AP: "Spectromicroscopy of Biominerals" 2012-2015, 2021-2023.
- **February 2011-present: Professor (0% appointment), Chemistry Department, UW-Madison.**
- **May 2010-present: Professor (0% appointment), Materials Science Program, UW-Madison.**
- March 2010-2014: Vice-Chair, Chair-Elect, Chair, Past-Chair of the Division of Biological Physics, American Physical Society.
- Associate Editor for Biomineralization, American Mineralogist, Dec. 2007-2011.
- Oct. 2007-present: Principal Investigator of the research project "Biomineralization" at the Advanced Light Source, Berkeley, CA.
- April 2005-February 2006: Research Director, University of Wisconsin Synchrotron Radiation Center (sole position).
- August 2002-April 2005: Interim Research Director for Multidisciplinary Science, University of Wisconsin Synchrotron Radiation Center (along with 2 other directors, J. C. Campuzano for Condensed Matter and J. W. Taylor for Education).
- **Oct. 99-present: Full Professor, Department of Physics, UW-Madison.**
- Sep. 99-01, Distinguished Visiting Scientist at the Jet Propulsion Laboratory/California Institute of Technology.
- Oct. 99-May 00: Permanent-Staff, Senior Scientist at top level (Primo Ricercatore) at the Institute for the Structure of Matter of the Italian National Research Council. Leave-of-Absence 2000-2002, resigned 2002.
- Dec. 88-Oct. 99: Staff Scientist at the Institute for the Structure of Matter of the Italian National Research Council (ISM-CNR), renewable 5-year-positions, Rome, Italy.
- Jan. 96-Dec. 98: Permanent Staff Scientist at the Institut de Physique Appliqée of the Ecole Polytechnique Fédérale de Lausanne, Switzerland, (Scientifique class 20), part time position, 50%.
- Jan. 94-Dec. 95: Staff Scientist at the Institut de Physique Appliqée of the Ecole Polytechnique Fédérale de Lausanne, Switzerland, (Scientifique class 18), funded with a senior scientist fellowship of the European Commission, Biotechnology Program.
- Oct. 1989-2009: Principal Investigator of the research project "Spectromicroscopy of Biosystems" at the UW-Synchrotron Radiation Center, Stoughton, WI, USA.
- Jan. 94-present: Principal Investigator of the MEPHISTO project (*Microscope à Emission de Photoélectrons par Illumination Synchrotronique de type Onduleur* (Photoelectron Emission Microscope by Synchrotron Undulator Illumination)*)*, jointly funded by the Fonds National de la Recherche Suisse, the EPF-Lausanne, ISM-CNR Rome.
- 1989-1993: Principal Investigator and Beamline Manager for the Beamline PLASTIQUE, ADONE storage ring, PULS laboratory, Frascati, Italy, 1989-1993.

Awards (main in red)

- UW-Madison WARF **Named Professorship award**, for making major contributions to the advancement of knowledge, through research, teaching, and service. John D. Wiley professor of

physics. September 13, 2024. https://www.physics.wisc.edu/2024/08/01/pupa-gilbert-earns-warf-named-professorship/

- Elected **Vice-Chair of Gordon Research Conference (GRC) on Biomineralization 2026, Chair of the GRC in 2028**. In-person election at the 2024 GRC, on August 8, 2024. https://www.grc.org/biomineralization-conference/2026/
- UW-Madison **Award for Mentoring Undergraduates in Research**, Scholarly and Creative Activities. Award ceremony during the 26th annual UW Undergraduate Symposium, April 25, 2024. https://www.physics.wisc.edu/2024/04/30/pupa-gilbert-earns-undergraduate-mentoring-award/
- First place winner of the 2023 BioGraphic Science Image Contest at the UCSF-Broad Stem Cell Center. Micro-CT image of a mouse cochlea, by Connor N. Klaus, Christoforos Meliadis, Tamara N. Alliston, Pupa Gilbert.
- Textbook Excellence "Texty" Award winner for "Physics in the Arts" 3rd edition, https://blog.taaonline.net/2022/02/taa-announces-2022-textbook-award-winners/, March 2022, Award ceremony on Zoom April 27th, 2022.
- **Fellow of the Mineralogical Society of America (MSA)**, November 2020.
- Radcliffe Award for an Accelerator Workshop on "Biomineralization: integrating mechanism and evolutionary history", Radcliffe Institute for Advanced Study, Harvard University, July 2019.
- 2019, NSF 2026 Idea Machine competition. Among the 33 finalists (out of 800 applicants) invited to prepare a video pitch of the idea, posted on *https://nsf2026imgallery.skild.com/entries/saving-coral-reef-ecosystems* .
- Vilas Distinguished Achievement Professor, UW-Madison, October 2018-.
- **David A. Shirley Award** for Outstanding Scientific Achievement at the Advanced Light Source "for her development of Polarization-dependent Imaging Contrast (PIC)-mapping to image the orientation of carbonate nanocrystals in marine biominerals", Advanced Light Source, Berkeley, CA, October 3, 2018.
- Radcliffe Summer Fellowship, Harvard University, July 2016.
- Winner of the BiophysicsART image contest, Biophysics@Rome Conference, May 2014.
- **Radcliffe Fellowship**, Radcliffe Institute for Advanced Study, Harvard University, 2014-2015.
- First Prize and People's Choice, 2012 International Science and Engineering **Visualization Challenge**, Photography. *Science* and NSF. Feb. 1st, 2013.
- Winner of the Cool Science Image contest, UW-Madison, 2012.
- Best University Research Award, DOE-BES-Geoscience Symposium on Geochemical Evolution of Dynamical Systems. Gaithersburg, Maryland, September 8-9, 2011.
- **Chancellor's Distinguished Teaching Award**, UW-Madison (6 awards/year, selected among ~2000 professors at UW), January 2011, Award ceremony April 27th, 2011.
- **Fellow of the American Physical Society**, Division of Condensed Matter Physics (DCMP), November 2010, Award ceremony March 22nd, 2011.
- Elected to the Executive Committee of the American Physical Society-Division of Biological Physics (**APS-DBIO**). Four-year position: **Vice-Chair, Chair-Elect, Chair, Past-Chair**, March 2010-March 2014.

- American Competitiveness and Innovation (ACI) Award 2008, nominated (without my knowing about it) by the NSF program officer David Brant, and awarded by the NSF-Division of Materials Research, August 2[1st], 2008 ($370,000, award period 2008-2010).
- Hamel Faculty Fellow Award 2008, Given by the UW-Graduate school to faculty within 10 years of receiving tenure, January 21[st], 2008 ($50,000, award period 2008-2013).
- Nominated for the 2007 l'Oréal-UNESCO «Women in Science» Award. Only 1 scientist is nominated from each country (Italy), only 1 winner per continent was selected.
- Vilas Research Associate Award, University of Wisconsin Graduate School, 2006-2007. Given by the University of Wisconsin Graduate School, in competition with 1 or 2, tenured or untenured professors from each department at UW. (4 mo. summer salaries, plus $25,000, award period 2006-2007)
- Faculty Development Grant Award, UW-College of Letters and Science, one semester of research salary support, Spring 2006.
- Romnes Award, University of Wisconsin Graduate School and Wisconsin Alumni Research Foundation, 2002. Given within 4 years of tenure, for outstanding research achievements ($50,000, award period 2002-2006).
- **Knight of Italy** (Cavaliere della Repubblica), awarded by Italy's President Carlo Azeglio Ciampi, for her contributions to spectromicroscopy methods development, June 1[st], 2001.
- Gert Rempfer "New Millennium Guiding Light Award", April 14[th], 2000.
- "**TOYP**" Award 1997 (The Outstanding Young Persons of the world) of the Junior Chamber International, Award for Scientific and Technological Development, **selected among the winning candidates of 116 countries worldwide**.
- "TOYP Italia" (The Outstanding Young Persons of the world) of the Junior Chamber Italiana, 1997 Award for Scientific Development.
- ENEA fellowship for Scanning Tunneling Microscopy of biological systems, 1988.
- ENPAS fellowship (for five years 1978-83).

Languages

Mother tongue: Italian. Fluent in English and French. Notions of Japanese, Spanish, Russian, and Greek.

Hobbies

Surrealist painting, acrylic flow painting, reading, gourmet cooking, wine making (Gold Medal award winner, Cellar Masters, L. A. International Competition, Fall 2009. Gold Medal award winner, Marin County Fair, Summer 2010).

Book

7. "Physics in the Arts" by PUPA Gilbert, Third edition, sole author, Elsevier-Academic Press, Cambridge, MA, USA, hard-cover printed book ISBN 9780128243473, March 2021.

6. "Physics in the Arts" by PUPA Gilbert, Third edition, sole author, Elsevier-Academic Press, eBook ISBN 9780128243480, January 2021.

5. "Physics in the Arts" by PUPA Gilbert and Willy Haeberli, Revised edition, Elsevier-Academic Press, eBook ISBN B0093J2PO8, October 2012.

4. “Physics in the Arts” Chinese edition, translated by Kecheng Qin, published by Tsinghua University Press, 2011.

3. “Physics in the Arts” Revised edition, Elsevier-Academic Press, paperback printed book ISBN 9780123918789, July 2011.

2. “Physics in the Arts” eBook, ISBN 9780080560236, June 2008.

1. “Physics in the Arts” by PUPA Gilbert and Willy Haeberli, Elsevier-Academic Press, Amsterdam, ISBN 9780123741509, January 2008.

Citation Records:

Google Scholar h-index: 65. h-index since 2021: 39. For updates click on link: http://scholar.google.com/citations?user=M8dQ0YsAAAAJ&hl=en

Web of Science h-index: 41 Search author “Gilbert PUPA OR De Stasio G* OR DeStasio G* OR Destasio G*” https://www.webofscience.com/wos/author/record/75558

Peer-Reviewed Journal Articles (milestones highlighted in yellow)**:**	
High-profile publications: 1 in *Nature*, 6 in *Science*, 10 in *PNAS*, 8 in *JACS*, 2 in *PRL,* 1 in *Adv Mater*, 1 in *Sci Adv,* 4 in *Nat Commun,* 3 in *Adv Funct Mater,* 1 in *Matter*. Updated Apr 2026.	
183	PUPA Gilbert, DR Green, P Mahoney, D Guatelli-Steinberg, WS McGraw, E Lagan, FK Manthi, S Muteti, E Ndiema, F Ramirez Rozzi, CA Stifler, CA Schmidt, BQ Achinuq, A Scholl, B Gilbert, MC O’Hara. Human and primate enamel nanocrystal c-axis misorientation varied with diet. *Nature*, accepted for publication Apr 22, 2026.
182	Z Rechav, E Tambutté, IM LeCloux, S Anglemyer, NE Beltz, NC Chou, BE Dixson-Kruijf, J Domagk, AM Larson, SW Lewis, R Rich, LO Saheed, JL Schwenk, JS Sengkhammee, CA Waltenberg, J Ye, BQ Achinuq, AA Venn, S Tambutté, PUPA Gilbert. Exponential crystallization in corals. *Nat Commun* **17**, 2870/1-12 (2026). DOI: https://doi.org/10.1038/s41467-026-69215-4
181	J Wilcots, KD Bergmann, PUPA Gilbert, AJ Cross. Nanoscale crystal fabric preserved in dolomite ooids at the onset of the Ediacaran Shuram excursion. *The Sedimentary Record* **23**, 1-17, (2025). DOI: 10.2110/001c.145144
180	CA Schmidt, W Nachlas, B Schneider, X Mao, E Tambutté, AAVenn, S Tambutté, PUPA Gilbert. Multiple twinning in nacre and aragonite. *Adv Funct Mater* **36**, e18248/1-12 (2025) DOI: 10.1002/adfm.202518248
179	EW Lees, C Tournassat, AZ Weber, PUPA Gilbert. eCoral: How electrolysis could restore seawater conditions ideal for coral reefs. *J Phys Chem Letters* **15**, 12206-12211 (2024). Journal Cover. DOI: 10.1021/acs.jpclett.4c02715

178	CA Schmidt, E Tambutté, AA Venn, Z Zou, C Castillo Alvarez, LS Devriendt, HA Bechtel, CA Stifler, S Anglemyer, CP Breit, CL Foust, A Hopanchuk, CN Klaus, IJ Kohler, IM LeCloux, J Mezera, M Patton, A Purisch, V Quach, JS Sengkhammee, T Sristy, S Vattem, EJ Walch, M Albéric, Y Politi, P Fratzl, S Tambutté, PUPA Gilbert. Myriad Mapping of nanoscale minerals reveals calcium carbonate hemihydrate in forming nacre and coral biominerals. *Nat Commun* **15**, 1812, 1-15 (2024). DOI: https://www.nature.com/articles/s41467-024-46117-x Highlighted in *Science* **384**, 402-403 (2024). https://www.science.org/doi/10.1126/science.adq0079?utm_source=sfmc&utm_medium=email&utm_content=alert&utm_campaign=editorsChoice&et_rid=54907326&et_cid=5191288#sec-3
177	C Castillo Alvarez, JL Grimsich, CA Schmidt, H Lisabeth, A Voigtländer, PUPA Gilbert. Calcite twinning in mollusk shells and Carrara marble. *Adv Funct Mater* **34**, 2304288, 1-9 (2024). DOI: https://doi.org/10.1002/adfm.202304288
176	AJ Lew, CA Stifler, A Tits, CA Schmidt, A Scholl, A Cantamessa, L Müller, Y Delaunois, P Compère, D Ruffoni, MJ Buehler, PUPA Gilbert. A molecular scale understanding of misorientation toughening in corals and seashells. *Advanced Materials* **35**, 2300373 (2023). Journal Cover. DOI: 10.1002/adma.202300373
175	AJ Lew, CA Stifler, A Cantamessa, A Tits, D Ruffoni, PUPA Gilbert, MJ Buehler. Deep learning virtual indenter maps nanoscale hardness rapidly and non-destructively, revealing mechanism and enhancing bioinspired design. *Matter* **6**, 1975-1991 (2023). DOI: 10.1016/j.matt.2023.03.031
174	PUPA Gilbert. Biomineral Mesostructure. *MRS Bulletin* **48**, (2023). DOI: 10.1557/s43577-023-00479-7
173	J Sui, J Li, L Gu, CA Schmidt, Z Zhang, Y Shao, E Gazit, PUPA Gilbert, X Wang. Orientation-Controlled Crystallization of γ-Glycine Films with Enhanced Piezoelectricity. *J Mat Chem B* **10**, 6958-6964 (2022). DOI: 10.1039/D2TB00997H
172	AJ Lew, E Beniash, PUPA Gilbert*, MJ Buehler*. Role of the mineral in the self-healing of cracks in human enamel. *ACS Nano* **16**, 10273–10280 (2022). DOI: 10.1021/acsnano.1c10407
171	PUPA Gilbert, KD Bergmann, N Boekelheide, S Tambutté, T Mass, F Marin, JF Adkins, J Erez, B Gilbert, V Knutson, M Cantine, J Ortega Hernández, AH Knoll. Biomineralization: integrating mechanism and evolutionary history. *Sci Adv* **8**, eabl9653 (2022). Journal Cover. (218 citations)
170	CA Stifler, H Yamazaki, PUPA Gilbert, HC Margolis, E Beniash. Loss of biological control of enamel mineralization in amelogenin-phosphorylation-deficient mice. J Struct Biol **214**, 107844 (2022). Journal Cover.

169	CA Schmidt, CA Stifler, EL Luffey, BI Fordyce, A Ahmed, G Barreiro Pujol, CP Breit, SS Davison, CN Klaus, IJ Koehler, IM LeCloux, C Matute Diaz, CM Nguyen, V Quach, JS Sengkhammee, EJ Walch, MM Xiong, E Tambutté, S Tambutté, T Mass, PUPA Gilbert. Faster crystallization during coral skeleton formation correlates with resilience to ocean acidification. *J Am Chem Soc* **144**, 1332-1341 (2022).
168	Z Deng, H-C Loh, Z Jia, CA Stifler, A Masic, PUPA Gilbert, R Shahar, L Li. Black Drum Fish Teeth: Built for Crushing Mollusk Shells. *Acta Biomaterialia* **137**, 147-161 (2022).
167	CA Stifler, CE Killian, PUPA Gilbert. Evidence for a liquid precursor to biomineral formation. *Cryst Growth Des* **21**, 6635-6641 (2021). Journal Cover.
166	L Gránásy, L Rátkai, GI Tóth, PUPA Gilbert, I Zlotnikov, T Pusztai. Phase-field modeling of biomineralization in mollusks and corals: microstructure vs formation mechanism. *J Am Chem Soc Au* **1**, 1014-1033 (2021).
165	J Salman, CA Stifler, A Shahsafi, C-Y Sun, S Weibold, M Frising, B Rubio-Perez, Y Xiao, C Draves, R Wambold, Z Yu, DC Bradley, G Kemeny, PUPA Gilbert, MA Kats. Hyperspectral interference tomography of nacre *Procs Natl Acad Sci* **118**, e2023623118 (2021).
164	CA Stifler, J Jakes, J North, D Green, JC Weaver, PUPA Gilbert. Crystal misorientation correlates with hardness in tooth enamels. *Acta Biomater* **120**, 124-134 (2021).
163	C-Y Sun, L Gránásy, CA Stifler, JAY Zhang, T Zaquin, T Mass, S Goffredo, G Falini, MA Marcus, R Chopdekar, T Pusztai, JC Weaver, PUPA Gilbert. Crystal nucleation and growth in spherulites revealed by coral skeletons. *Acta Biomater* **120**, 277-292 (2021).
162	Y-H Lo, J Zhou, A Rana, D Morrill, C Gentry, B Enders, Y-S Yu, C-Y Sun, D Shapiro, RW Falcone, H Kapteyn, M Murnane, PUPA Gilbert, and J Miao. X-ray linear dichroic ptychography. *Procs Natl Acad Sci* 118, e2019068118 (2021).
161	H Li, C-Y Sun, Y Fang, CM Carlson, H Xu, A Ješovnik, J Sosa-Calvo, R Zarnowski, HA Bechtel, JH Fournelle, DR Andes, TR Schultz, PUPA Gilbert, CR Currie. Biomineral armor in leaf-cutter ants. *Nat Commun* **11**, 5792 (2020).
160	C-Y Sun, CA Stifler, RV Chopdekar, CA Schmidt, G Parida, V Schoeppler, BI Fordyce, JH Brau, T Mass, S Tambutté, PUPA Gilbert. From particle attachment to space-filling coral skeletons. *Procs Natl Acad Sci* **117**, 30159-30170 (2020).
159	H-C Loh, T Divoux, B Gludovatz, PUPA Gilbert, RO Ritchie, F-J Ulm, A Masic. Nacre toughening due to cooperative plastic deformation of stacks of co-oriented aragonite platelets. *Commun Mater* **1**, 77 (2020).
156	R Laipnik, V Bissi, C-Y Sun, G Falini, PUPA Gilbert, T Mass. Coral acid rich protein selects vaterite polymorph *in vitro.* *J Struct Biol* **209**, 107431 (2020).

155	E Beniash, CA Stifler, C-Y Sun, GS Jung, Z Qin, MJ Buehler, PUPA Gilbert. The hidden structure of human enamel. *Nat Commun* **10**, 4383/1-13 (2019). (269 citations)
154	PUPA Gilbert, SM Porter, BM Gibson, C-Y Sun, S Xiao, N Shenkar, AH Knoll Biomineralization by particle attachment in early animals. *Procs Natl Acad Sci* **116**, 17659-65 (2019).
153	M Albéric, CA Stifler, Z Zou, C-Y Sun, CE Killian, S Valencia Molina, M Mawass, F Kronast, L Bertinetti, PUPA Gilbert, Y Politi. Growth and regrowth of adult sea urchin spines involves hydrated and anhydrous amorphous calcium carbonate precursors. *J Struct Biol X* **1**, 100004 (2019).
152	Z Zou, WJEM Habraken, G Matveeva, ACS Jensen, L Bertinetti, MA Hood, C-Y Sun, PUPA Gilbert, I Polishchuk, B Pokroy, J Mahamid, Y Politi, S Weiner, P Werner, S Bette, R Dinnerbier, U Kolb, E Zolotoyabko, P Fratzl. A hydrated crystalline calcium carbonate phase: Calcium carbonate hemihydrate. *Science* **363**, 396-400 (2019).
151	CA Stifler, N Kølln Wittig, M Sassi, C-Y Sun, MA Marcus, H Birkedal, E Beniash, KM Rosso, PUPA Gilbert. X-ray linear dichroism in apatite. *J Am Chem Soc* **140**, 11698-11704 (2018).
150	PUPA Gilbert Polarization-dependent Imaging Contrast (PIC) Mapping in 2018. *Microsc Microanal* **24**, 454-456 (2018). This is a short review of the PIC-mapping method I introduced.
149	CE Myers, KD Bergmann, C-Y Sun, N Boekelheide, AH Knoll, PUPA Gilbert. Exceptional Preservation of Organic Matrix and Shell Microstructure in a Cretaceous *Pinna* Fossil revealed by PhotoEmission Electron spectroMicroscopy (PEEM). *Geology* **46**, 711-714 (2018).
148	MA Marcus, S Amini, CA Stifler, C-Y Sun, N Tamura, HA Bechtel, DY Parkinson, HS Barnard, XXX Zhang, JQI Chua, A Miserez, PUPA Gilbert. Parrotfish teeth: stiff biominerals whose microstructure makes them tough and abrasion-resistant to bite stony corals. *ACS Nano* **11**, 11856–11865 (2017).
147	I Polishchuk, A Aronhime Bracha, L Bloch, D Levy, S Kozachkevich, Y Etinger-Geller, Y Kauffmann, M Burghammer, C Giacobbe, J Villanova, G Hendler, C-Y Sun, AJ Giuffre, MA Marcus, L Kundanati, P Zaslansky, NM Pugno, PUPA Gilbert, A Katsman, B Pokroy. Coherently Aligned Nanoparticles Within a Biogenic Single Crystal: a Biological Prestressing Strategy. *Science* **358**, 1294-1298 (2017).
146	T Mass, AJ Giuffre, C-Y Sun, CA Stifler, MJ Frazier, M Neder, N Tamura, CV Stan, MA Marcus, PUPA Gilbert. Amorphous calcium carbonate particles form coral skeletons. *Procs Natl Acad Sci* **114**, E7670-E7678 (2017). Journal Cover. Highlighted in *Science* **357**, 1012 (2017). (322 citations)

145	C-Y Sun, MA Marcus, MJ Frazier, AJ Giuffre, T Mass, PUPA Gilbert. Spherulitic Growth of Coral Skeletons and Synthetic Aragonite: Nature's Three-Dimensional printing. *ACS Nano* **11**, 6612–6622 (2017).
144	PUPA Gilbert, KD Bergmann, CE Myers, MA Marcus, RT DeVol, C-Y Sun, AZ Blonsky, J Zhao, EA Karan, E Tamre, N Tamura, AJ Giuffre, S Lemer, G Giribet, JM Eiler, AH Knoll. Nacre tablet thickness records formation temperature in modern and fossil shells. *Earth Planet Sci Lett* **460**, 281-292 (2017).
143	RT DeVol, C-Y Sun, MA Marcus, SN Coppersmith, SCB Myneni, and PUPA Gilbert. Nanoscale transforming mineral phases in fresh nacre. *J Am Chem Soc* **137**, 13325-13333 (2015). Highlighted in *Science* **350**, 648 (2015).
142	B Pokroy, L Kabalah-Amitai, I Polishchuk, RT DeVol, AZ Blonsky, C-Y Sun, MA Marcus, A Scholl, PUPA Gilbert. Narrowly distributed crystal orientation in biomineral vaterite. *Chem Mater* **27**, 6516–6523 (2015). Journal Cover.
141	JJ De Yoreo, PUPA Gilbert, NAJM Sommerdijk, RL Penn, S Whitelam, D Joester, H Zhang, JD Rimer, A Navrotsky, JF Banfield, AF Wallace, FM Michel, FC Meldrum, H Cölfen, PM Dove. Crystallization by Particle Attachment in Synthetic, Biogenic, and Geologic Environments. *Science* **349**, aaa6760 (2015). DOI: 10.1126/science.aaa6760. (2042 citations)
140	A Gal, K Kahil, N Vidavsky, RT DeVol, PUPA Gilbert, P Fratzl, S Weiner, L Addadi. Particle accretion mechanism underlies biological crystal growth from an amorphous precursor phase. *Adv Funct Mater* **24**, 5420-5426 (2014).
139	RT DeVol, RA Metzler, L Kabalah-Amitai, B Pokroy, Y Politi, A Gal, L Addadi, S Weiner, A Fernandez-Martinez, R Demichelis, JD Gale, J Ihli, FC Meldrum, AZ Blonsky, CE Killian, CB Salling, AT Young, MA Marcus, A Scholl, A Doran, C Jenkins, HA Bechtel, and PUPA Gilbert. Oxygen spectromicroscopy and Polarization-dependent Imaging Contrast (PIC)-mapping of calcium carbonate minerals and biominerals. *J Phys Chem B* **118**, 8449-8457 (2014). First color PIC mapping, with full 3D reconstruction of c-axis orientation.
138	IC Olson, AZ Blonsky, N Tamura, M Kunz, Boaz Pokroy, CP Romao, MA White, PUPA Gilbert. Crystal nucleation and near-epitaxial growth in mollusk shell nacre. *J Struct Biol* **184**, 454–463 (2013). Journal Cover.
137	IC Olson, RA Metzler, N Tamura, M Kunz, CE Killian, and PUPA Gilbert. Crystal lattice tilting in prismatic calcite. J. Struct. Biol. special issue for Steve Weiner's 65th birthday. *J Struct Biol* **183**, 180-190 (2013).
136	L Kabalah-Amitai, B Mayzel, Y Kauffmann, AN Fitch, L Bloch, PUPA Gilbert, B Pokroy. Vaterite crystals contain two interspersed crystal structures. *Science* **340**, 454-457, (2013).

135	CJ Johnson, PUPA Gilbert, M Abrecht, KL Baldwin, RE Russell, JA Pedersen, JM Aiken, D McKenzie. Low copper and high manganese levels in prion protein plaques. *Viruses* **5**, 654-662 (2013).
134	IC Olson and PUPA Gilbert. Aragonite crystal orientation in mollusk shell nacre may depend on temperature. The angle spread of crystalline aragonite tablets records the water temperature at which nacre was deposited by *Pinctada margaritifera*. *Faraday Discussions* **159**, 421-432 (2012).
133	AR Konicek, DS Grierson, AV Sumant, TA Friedmann, JP Sullivan, PUPA Gilbert, WG Sawyer, RW Carpick. Influence of surface passivation on the friction and wear behavior of ultrananocrystalline diamond and tetrahedral amorphous carbon thin films. *Phys Rev B* **85**, 155448 (2012).
132	YUT Gong, CE Killian, IC Olson, NP Appathurai, AL Amasino, MC Martin, LJ Holt, FH Wilt, PUPA Gilbert. Phase transitions in biogenic amorphous calcium carbonate. *Procs Natl Acad Sci* **109**, 6088-6093 (2012). Two amorphous precursors confirmed in cross-sections of sea urchin spicules. First hypothesis of protein function for SM50. First time I introduced Component Mapping of $CaCO_3$ phases at the nanoscale. 311 citations.
131	IC Olson, R Kozdon, JW Valley, and PUPA Gilbert. Mollusk Shell Nacre Ultrastructure Correlates with Environmental Temperature and Pressure. *J Am Chem Soc* **134**, 7351-7358 (2012). Journal Cover.
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37	Gelsomina De Stasio, S. Hardcastle, S. F. Koranda, B. P. Tonner, Delio Mercanti, M. Teresa Ciotti, P. Perfetti and G. Margaritondo.

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33	G. Zolese, I. Giambanco, G. Curatola, Gelsomina De Stasio, and R. Donato. Time Resolved Fluorescence of S-100a Protein in the Absence and Presence of Calcium and Phospholipids. *Biochim Biophys Acta* **1162**, 47-53 (1993).
32	Gelsomina De Stasio, D. Rioux, G. Margaritondo, D. Mercanti, L. Trasatti, C. Moore. Scanning Tunneling Microscopy Images of DNA (Deoxyribonucleic Acid) During Replication. *J Vac Sci Technol A* **9**, 2319-2321 (1991).
31	D. Mercanti, Gelsomina De Stasio, M. T. Ciotti, C. Capasso, W. Ng, A. K. Ray-Chaudhuri, S. H. Liang, R. K. Cole, Z. Y. Guo, J. Wallace, G. Margaritondo, F. Cerrina, J. Underwood, R. Perera, J. Kortright. Photoelectron Microscopy in the Life Sciences: Imaging Neuron Networks. *J Vac Sci Technol A* **9**, 1320-22 (1991).
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29	T. Parasassi, Gelsomina De Stasio, A. D'Ubaldo, E. Gratton. Phase fluctuation in phospholipid membranes, revealed by Laurdan fluorescence. *Biophys J* **57**, 1179- 86 (1990). (929 citations)
28	Gelsomina De Stasio, C. Capasso, W. Ng, A. K. Ray-Chaudhuri, S. H. Liang, R. K. Cole, Z. Y. Guo, J. Wallace, G. Margaritondo and F. Cerrina, J. Underwood, R. Perera and J. Kortright, D. Mercanti, M. T. Ciotti, A. Stecchi. High Resolution Photoelectron Microimaging of Neuron Networks. *Europhys Lett* **16**, 411-414 (1991).
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	Rev Sci Instrum **62**, 1670-1671 (1991). This is the synchrotron beamline I designed and built for my doctoral thesis.
25	T. Parasassi, Gelsomina De Stasio, R. M. Rush and E. Gratton. A Photophysical Model for 1.6-Diphenyl-1,3,5-Hexatriene Decay in Solvents and in Phospholipid Vesicles. *Biophys J* **59**, 466-475 (1991).
24	T. Parasassi, O. Sapora, A. M. Giusti, Gelsomina De Stasio and G. Ravagnan. Alterations in Erythrocyte Membrane Lipids Induced by Low Doses of Ionizing Radiation as Detected by 1,6-Diphenyl-1,3,5-Hexatriene Fluorescence Lifetime Distribution. *Int J Radiat Biol* **59**, 59-69 (1991).
23	T. Parasassi, G. De Stasio, A. Miccheli, F. Bruno, F. Conti and E. Gratton. Abscisic Acid Induced Microheterogeneity in Phospholipid Vesicles. A Fluorescence Study. *Biophys Chem* **35**, 65-73 (1990).

Invited Reviews and Book Chapters:	
22	S Tambutté, AA Venn, P Ganot, E Tambutté, PUPA Gilbert From cells to skeletons: comparing octocorals and hexacorals Helmut Cölfen's book 2026
21	PUPA Gilbert. Photoemission spectromicroscopy for the biomineralogist. In "Biomineralization Handbook, Characterization of Biominerals and Biomimetic Materials" L Gower and E DiMasi Editors, pages 135-151, CRC Press, Boca Raton, FL (2014). DOI: 10.1201/b16621-12. This is intended to be an instruction manual for any mineralogist or biomineralogist that wishes to use PEEM.
20	N Tamura and PUPA Gilbert. X-ray Microdiffraction of Biominerals. In "Research Methods in Biomineralization Science", James J. De Yoreo Ed., MIE Vol. **532**, pages 501-531, Elsevier, Burlington, MA (2013). DOI: 10.1016/B978-0-12-416617-2.00021-7.
19	PUPA Gilbert. Polarization-dependent Imaging Contrast (PIC) mapping reveals nanocrystal orientation patterns in carbonate biominerals. Special issue on Photoelectron microscopy, Time-resolved pump-probe PES. Eds. M Kiskinova, A Scholl. *J Electr Spectrosc and Rel Phenom* **185**, 395-405 (2012).
18	PUPA Gilbert and FH Wilt. Molecular Aspects of Biomineralization of the Echinoderm Endoskeleton. In *Molecular Biomineralization: Aquatic Organisms Forming Extraordinary Materials*, edited by WEG Müller, Springer, Heidelberg, pages 199-224, (2011). DOI: 10.1007/978-3-642-21230-7_7
17	PUPA Gilbert, BH Frazer and M Abrecht. The organic-mineral interface in biominerals. In Reviews in Mineralogy and Geochemistry, Vol **59**: Molecular Geomicrobiology. JF Banfield, KH Nealson, J Cervini-Silva (eds), Mineralogical Society of America, Washington DC, p 157-185 (2005).

16	G De Stasio, MA Schmitt, SH Gellman. Spectromicroscopy at the Organic-Inorganic Interface in Biominerals. In *Quantitative approaches towards biogeochemistry: processes, scaling and interfaces*, *Am J Science* **305**, 673-686 (2005). Journal Cover.
15	G. Margaritondo and Gelsomina De Stasio. Synchrotron Spectromicroscopy for the Life Sciences: General Considerations and Special Procedures, *Int J Imaging Sys and Technol* **8**, 188-203 (1997).

Refereed Conference Proceedings:	
14	RA Metzler, RM Olabisi, M Abrecht, D Ariosa, CJ Johnson, B Gilbert, BH Frazer, SN Coppersmith, and PUPA Gilbert. XANES in Nanobiology. In American Institute of Physics Conference Proceedings, Volume 882, X-Ray Absorption Fine Structure - XAFS13: 13th International Conference, Stanford, California (USA), 9-14 July 2006, Edited by B. Hedman and P. Pianetta, p. 51-55 (2007).
13	Gelsomina De Stasio and G. Margaritondo. Photoelectron Spectromicroscopy with Synchrotron Radiation: Applications to Neurobiology. In Spectromicroscopy with VUV Photons and X-Rays, special issue of J. Electr. Spectr. and Rel. Phenom., H. Ade, Ed., Elsevier, Amsterdam, 137-147, 1997.
12	G. F. Lorusso, G. De Stasio, D. Perret, R. Andres, D. Mercanti, M. T. Ciotti, L. Milazzo, P. Casalbore and G. Margaritondo. Quantitative characterization of time dependence of boron uptake by brain cells. In "Advances in Neutron Capture Therapy", B. Larsson, J. Crawford And R. Weinreich Eds., Elsevier, Amsterdam, 330-333, 1997.
11	R. Andres, G. De Stasio, G. F. Lorusso, J. Redondo, D. Mercanti, M. T. Ciotti, and G. Margaritondo. Boron Chemical Status after Incineration Studied by Spectromicroscopy. In "Advances in Neutron Capture Therapy", B. Larsson, J. Crawford And R. Weinreich Eds., Elsevier, Amsterdam, 326-329, 1997.
10	G. De Stasio, B. Gilbert, R. Andres, G. F. Lorusso, J. Redondo, E. G. Van Meir, J.-F. Brunet, T. C. Droubay, B. P. Tonner, D. Mercanti, M. T. Ciotti, T. Suda, P. Perfetti and G. Margaritondo. Synchrotron Spectromicroscopy for Microchemical Analysis of Boron in Rat Brain Tumor treated with BSH. In "Advances in Neutron Capture Therapy", B. Larsson, J. Crawford And R. Weinreich Eds., Elsevier, Amsterdam, 321-325, 1997.
9	G. De Stasio. New Possibilities Opened by Synchrotron Spectromicroscopy in Neurobiology. Acta Physica Polonica **A91**, 715-721 (1997).
8	G. F. Lorusso, Gelsomina De Stasio, B. P. Tonner, M. T. Ciotti, D. Mercanti, S. Pochon and G. Margaritondo. Surface and Bulk Analysis of Zinc Uptake by Brain Cells.

	Proceedings of the ¨6th European Conference on Applications of Surface and Interface Analysis, ECASIA 95¨, H. J. Mathieu, B. Rheil and D. Briggs Eds., Wiley Chichester, 412-15, 1996.
7	G. Margaritondo, J. Almeida, Gelsomina De Stasio. Recent Progress in Synchrotron Radiation Spectroscopy and Spectromicroscopy, *J Jpn Soc Synch Radiat Res* **8**, 521-532 (1995).
6	Gelsomina De Stasio. Synchrotron Radiation Spectromicroscopy: Recent Results in Neurobiology. *J Physique* IV **4**, C9-287-292 (1994).
5	G. Margaritondo, F. Cerrina, N. H. Tolk and Gelsomina De Stasio. Non-Linear Optics, Fluorescence, Spectromicroscopy, Stimulated Desorption: We Need LCLS' Brightness and Time Scale! Workshop on Scientific Applications of Short Wavelength Coherent Light Sources, SLAC Report **414**, 65-90 (1993).
4	Gelsomina De Stasio and G. Margaritondo. Photoemission Spectromicroscopy. In New Directions in Research with Third-Generation Soft X-Ray Synchrotron Radiation Sources, A. S. Schlachter and F. J. Wuilleumier Eds., NATO ASI Series, Kluwer Academic Publishers, Netherlands, p. 299-313 (1994).
3	Gelsomina De Stasio, F. Cerrina, B. P. Tonner, D. Mercanti, G. Margaritondo. Spectromicroscopy in Biophysics. In "Life Chemistry Reports", Vol. 11, pp. 79-95. Harwood Academic Publishers GmbH, Malaysia, (1994).
2	Gelsomina De Stasio, P. Perfetti, D. Mercanti, M. T. Ciotti, S. Hardcastle, S. F. Koranda, B. P. Tonner, C. Capasso, W. Ng, A. K. Ray-Chaudhuri, S. Liang, S. Singh, F. Cerrina, G. Margaritondo. Photoemission Spectromicroscopies of Neurons. In "Vacuum Ultraviolet Radiation Physics", Proceedings of the 10th VUV conference, p.534-543, edited by F. J. Wuilleumier, Y. Petroff and I. Nenner, World Scientific, Singapore (1993).
1	Gelsomina De Stasio, G. Margaritondo, C. Capasso, F. Cerrina. X-Ray Photoemission Enters the Life Sciences. Proceedings of the X-Ray and Inner Shell Processes conference, Knoxville, TN, p. 231-241. Edited by T. A. Carlson, M. O. Krause, S. T. Manson (1990).

Non-refereed publications and proceedings are not listed.

News&views, Perspectives, Previews, Highlights:	
A	PUPA Gilbert, CA Stifler. Through a glass, clearly. *Matter* 1, 17-38 (2019) DOI: https://doi.org/10.1016/j.matt.2019.06.015
B	PUPA Gilbert. Wavy or Curly? *MRS Bulletin* **47**, 16–17 (2022) DOI: https://doi.org/10.1557/s43577-021-00229-7

C	PUPA Gilbert. New & Views: Sea-urchin spines generate electrical signals in flowing water. *Nature* **651**, 315-316 (2026). DOI: https://doi.org/10.1038/d41586-026-00374-6

Invited Talks at Conferences and Workshops:	
174	"TBD" The 21st International Microscopy Congress (IMC21) 2026, Liverpool, UK, Aug 31-Sep 2, 2026.
173	"Boron, growth rates, and more accurate pH reconstructions from coral skeletons" Keynote talk, Goldschmidt, Montreal, Canada, July 12-17, 2026.
172	"AI simulation-based inference to understand the dynamics of the animal-skeleton interface in corals" Goldschmidt, Montreal, Canada, July 12-17, 2026.
171	Enamel nanocrystal misorientation increased with meat-eating and agriculture, Materials Research Society (MRS) Spring Meeting, Honolulu HI, Apr 26-May 1, 2026.
170	"Biomineral precursors through time: from 5 min to 550 million years" AFOSR Biosynthesis Workshop, on Zoom, Feb 26, 2026.
169	"Biomineral precursors in time and deep time", Keynote talk at the Mineralogical Society of America (MSA) Annual Meeting, Tucson, AZ, Feb 16-18, 2026.
168	"Tooth enamel nanocrystals became more misoriented after the introduction of meat and agriculture", 40th Annual Meeting for Science of Surfaces, Interfaces, and Nanostructures, Fribourg, Switzerland, Feb 6th, 2026.
167	"Evolution of enamel nanocrystal misorientation before and after diet changes" PacifiChem 2025, Honolulu, HI, Dec 15-20, 2025.
166	"Evolution of enamel nanocrystal misorientation before and after diet changes" ACS Fall Meeting, Washington DC, August 17-21, 2025.
165	"Frustrated crystal in nature" ICAM Workshop on Frustrated Assemblies 2025, Ann Arbor MI, July 21-25, 2025.
164	"Evolution of enamel nanocrystal misorientation before and after diet changes" International Conference of Electronic Spectroscopy and Structure (ICESS-16), Berkeley CA, July 20-25, 2025.
163	"Traveling through space and time in coral biomineralization". Keynote talk at the Third International Association of GeoChemistry (IAGC-3) Conference, Cagliari, Italy, June 16-21, 2025.
162	"Enamel evolution across dietary changes", MRS Spring meeting, Seattle, WA, Apr 7-11, 2025.
161	"Crystalline and amorphous precursors to aragonite but not calcite biomineral formation", MRS Fall meeting, Boston, MA, Dec 1-6, 2024.
160	"Unexpected phases and phase transitions in biomineral aragonite", ACS Fall meeting, Denver, CO, Aug 18-22, 2024.
159	"The evolution of biomineralization", Gordon Research Conference on Biomineralization, Colby Sawyer College, New London, NH, August 4-9, 2024.

158	"Invertebrates: mechanisms for regulation of $CaCO_3$ formation", discussion leader, Gordon Research Conference on Biomineralization, Colby Sawyer College, New London, NH, August 4-9, 2024.
157	"Biomineralization Mechanisms in deep time", KnollFest, a celebration of the 40-year career at Harvard of Andrew H. Knoll. Harvard University, Cambridge, MA, April 26-27, 2024.
156	"Coral reef formation from nanometers to kilometers" Plenary Talk, African Light Source AfLS-2023 and African Physical Society AfPS2023, November 13-17, 2023, South Africa, held on Zoom.
155	"Coral reef formation from nanometers to kilometers" DIGS-BB Symposium on "Biological Making of Materials", Dresden, Germany, Sep 11-12, 2023
154	"Biomineralization: how mollusks & corals form their shells & skeletons" Keynote talk at 6th International Sclerochronology Conference, Tokyo, Japan, May 21-25, 2023.
153	"Coral reef formation from nanometers to kilometers" tutorial talk, Materials Research Society (MRS) Spring Meeting, San Francisco, Ca, April 9-14, 2023.
152	"Calcium carbonate spherulites: how they form in biogenic, synthetic, and geologic systems" AGU 2022 in session "Carbonate Sediments Through Time: Proxies for Process and Planets" American Geological Union (AGU) Fall Meeting, Chicago, IL, Dec 12-16, 2022.
151	"Biomineralization mechanisms revealed by PEEM" Distinguished Guest Lecture at the 12th International Conference on LEEM PEEM, Córdoba, Spain, Sep 26-30, 2022.
150	"An integrated model for $CaCO_3$ biomineralization and its evolutionary history" American Chemical Society (ACS) fall meeting, Chicago, IL, Aug 21-25, 2022.
149	"Diverse but convergent mesostructure in biominerals" Natural materials and their bio-inspired counterparts conference, Andermatt, Switzerland, Aug 7-12, 2022.
148	"Teaching with Willy, cooking with Willy and Gaby" Willy Haeberli Memorial Symposium, Madison, WI, June 19-20, 2022.
147	"Nanocrystal orientations in enamel from diverse animals" Keynote talk at 10th International Symposium on Dental Enamel, Pittsburgh, PA, May 8-12, 2022.
146	"Coral skeletons start as particles nanoconfined in intracellular vesicles" American Chemical Society (ACS) spring meeting, San Diego, CA, Mar 20-24, 2022.
145	"Convergent Biomineralization" iCANX talks, Peking University, Beijing, China, Dec 3, 2021. 23,800 live participants
144	"Diverse but convergent mesostructure in biominerals" Plenary talk in Symposium X, Materials Research Society (MRS) Fall Meeting, Boston, MA, Nov 29-Dec 1, 2021. https://www.mrs.org/meetings-events/fall-meetings-exhibits/2021-mrs-fall-meeting/meeting-events/featured-talks
143	"Biomineral mesostructure" Keynote talk at 16th International Symposium on Biomineralization (BIOMIN XVI), Zhejiang University, Hengzhou, China, Aug 22-27, 2021. HELD ON ZOOM.
142	"Nucleation and growth of spherulites" American Chemical Society (ACS) annual meeting, Atlanta, GA, Aug 22-26, 2021. Hybrid.

141	"Chemistry of $CaCO_3$ phase transitions" DOE BES Geosciences Principal Investigators' Meeting, Gaithersburg, MD, August 4-6, 2021. HELD ON ZOOM.
140	"PEEM (PIC and Component mapping) reveals how corals form their skeletons" PEEM Workshop, ALBA II Synchrotron, Barcellona, Spain, July 7, 2021. HELD ON ZOOM.
139	"Nucleation and growth of spherulites in coral skeletons, aspirin, chocolate", invited talk in 06j Crystallization Pathways in Geochemistry, Biomineralization and Materials Science, Virtual Goldschmidt, Lyon, France, July 4-9, 2021. HELD ON ZOOM.
138	"Nature's 3D Printing: Self-Assembly of Coral Skeletons", Symposium SM07, Building Advanced Materials by Self-Assembly, Virtual Materials Research Society (MRS) Spring Meeting, Apr 18-23, 2021. HELD ON ZOOM.
137	"Nature's 3D printing: self-assembly of coral skeletons, aspirin, chocolate" Plenary talk at American Physical Society (APS) Fall Prairie Section, Biophysics and Soft Condensed Matter session, Nov. 13-15, 2020. HELD ON ZOOM.
136	"Biomineral characterization using integrated X-ray methods" Integrative Hybrid Methods for Comprehensive Imaging of Biomolecules workshop, ALS Users Meeting Aug 28, 2020. HELD ON ZOOM.
135	"Biomineralization by amorphous particle attachment in the last 550 million years", Keynote talk in 07c Mineral Crystallization, Aggregation, and Dissolution, Virtual Goldschmidt, Hawaii, June 21-26, 2020. HELD ON ZOOM.
134	"Nucleation and growth of spherulites in coral skeletons, aspirin, chocolate", Pre-Goldschmidt 2020 Workshop on "Crystallization via non-classical pathways", Hawaii, June 21, 2020. HELD ON ZOOM.
133	"Biomineralization by attachment of nanoparticles during the last 550 million years", ACS National Meeting, Philadelphia, PA, Mar 22-26, 2020. Cancelled.
132	"Color: Physics and Perception" American Association of Physics Teachers (AAPT) annual meeting, 132, FL, Jan 18-21, 2020.
131	"The hidden structure of mouse and human enamel" Keynote talk at 8th International Conference on Mechanics of Biomaterials and Tissues (ICMBT), Waikoloa Beach, HI, Dec 15-19, 2019.
130	"Biomineralization by attachment of nanoparticles from the Ediacaran through all of the Phanerozoic" Mineralogical Society of America annual meeting, Phoenix, AZ, Sep 22-25, 2019.
129	"Biomineralization by amorphous particle attachment in marine organisms, modern and fossil" Radcliffe Workshop on "Biomineralization: integrating mechanism and evolutionary history", Radcliffe Institute for Advanced Study, Harvard University, Cambridge, MA, July 11-12, 2019.
128	"Crystallization by particle attachment in marine organisms" International Geobiology Course, Wrigley Marine Institute, Catalina Island, CA, July 3-11, 2019.
127	"Biogenic and Bio-Inspired Materials" Gordon Research Conference on Crystal Growth & Assembly, University of New England, Manchester, NH June 23-28, 2019.
126	"Structure and energy landscapes in biomineral formation" ACS National Meeting, Orlando, FL, Mar 31-Apr 4, 2019.

125	"Biomineralization of nacre and sea urchin spicules" DOE-BER Workshop on Genome Engineering for Material Synthesis (GEMS), Rockville, MD, Oct 9-11, 2018.
124	"Studying Biomineralization with X-Rays" Shirley Award Talk and Keynote talk, 2018 Advanced Light Source Users' Meeting celebrating the 25th anniversary of first light at ALS. Berkeley, CA, Oct 2, 2018.
123	"Crystal orientations in mother-of-pearl" lightning talk at event "A New Light for Berkeley Lab: The Next 25 Years at the ALS". Berkeley, CA, Sep 28, 2018.
122	"Polarization-dependent Imaging Contrast (PIC) mapping in 2018" International Conference X-ray Microscopy, XRM2018, Saskatoon, Saskatchewan, Canada, August 19-24, 2018. Cancelled.
121	University of California-Mesoscale Materials Summer School, Irvine, CA, Aug 9-10, 2018. Cancelled.
120	"Spherulites, sprinkles, and concentric rings in coral skeletons" DOE BES Geosciences Principal Investigators' Meeting, Gaithersburg, MD, August 7-9, 2018.
119	"Crystallization by particle attachment in biominerals" 26th American Conference on Crystal Growth and Epitaxy - West, Fallen Leaf Lake, CA, June 10-13, 2018.
118	"How corals build reefs from nanoparticles" in symposium "Biomineralization and Bio-compatible Minerals", 255th ACS National Meeting, New Orleans, LA, March 18-22, 2018.
117	"Amorphous precursors in natural biominerals: sea urchin spicules, nacre, and coral" International Materials Research Congress 2017, Cancun, Mexico, August 20-26, 2017. cancelled.
116	"Crystallization by particle attachment (CPA) in biominerals" DOE-BES-Geosciences-Geochemistry Principal Investigators' Meeting, Leesburg, VA, August 8-9, 2017.
115	"Biomineralization of corals, sea urchins, and nacre" 12th Pacific Rim Conference on Ceramic and Glass Technology, Waikoloa, HI, May 21-26, 2017.
114	"Color: physics and perception" American Physical Society March Meeting, New Orleans, LA, March 13-17, 2017. https://meetings.aps.org/Meeting/MAR17/Session/L22.2
113	"How can you grow crystals really fast? Ask biominerals!" Conference "Different is Different" Imagination and Condensed Matter Physics on the Occasion of Sue Coppersmith's 60th Birthday, Aspen Center for Physics, Aspen, CO, March 3-4, 2017.
112	"Earth and Environmental Science at ALS-U" ALS-U: Solving scientific challenges with coherent soft-x-rays, ALS-LBNL, Berkeley, CA. January 18-20, 2017.
111	"Biomineralization" American Physical Society- and NSF-sponsored Conference for Undergraduate Women in Physics (CUWiP), Madison, WI, January 13-15, 2017.
110	"Nacre formation mechanisms" 116th Statistical Mechanics Conference, in honor of John Cardy and Susan Coppersmith, Rutgers University, New Brunswick, NJ, December 18-20, 2016.
109	"Crystal growth mechanisms of biominerals revealed by polarization-dependent Imaging Contrast (PIC) mapping", American Vacuum Society 63rd Annual International Symposium, Nashville, TN, November 6-11, 2016.

108	"Color: physics and perception" TEDxMadison, Madison, WI, October 29, 2016.
107	"Biomineral Formation Mechanisms" Biomaterials Tools and Foundry Workshop, National Science Foundation, Arlinton, VA, Aug. 2-3, 2016.
106	"Biomineralization" Miller Symposium, Miller Institute, University of California – Berkeley, Point Reyes, CA, June 3-5, 2016.
105	"Nacre structure as a temperature proxy" Batsheva Conference on Biomineralization, Weizmann Institute of Science in Rehovot, Kibbutz in the Negev Desert, Eilat, Rehovot, Israel, February 7-13, 2016.
104	"Formation mechanisms of carbonate biominerals" Keynote talk at Biomin XIII: 13th International Symposium on Biomineralization, Granada, Spain, September 16-19, 2015.
103	"PEEM and Pearls", Keynote talk at XAFS16: 16th International Conference on X-ray Absorption Fine Structure. Karlsruhe Institute of Technology, Karlsruhe, Germany, August 23-28, 2015.
102	"*Pinnidae* nacre preserves a physical indicator of environmental temperature", Goldschmidt Conference, Prague, Czeck Republic, August 16-21, 2015.
101	"Willy Haeberli in retirement" Heinz H. Barschall and Willy Haeberli Symposium in the occasion of the 100th anniversary of HHB's birth and WH's 90th birthday, April 11th, 2015.
100	"Formation pathways in biominerals revealed by their structure" National Academies of Sciences Workshop on Mesoscale Chemistry, Washington, DC, Nov. 8, 2014.
99	"Mollusk shell nacre and the environment", Synchrotron Environmental Science VI, Advanced Photon Source (Argonne National Laboratory), Argonne, IL, USA, September 11 and 12, 2014**.**
98	"Crystal nucleation and growth in natural biominerals" Opening Talk at the Gordon Research Conference on Biomineralization, Colby Sawyer College, New London, NH, August 17-22, 2014.
97	"Phase transitions in $CaCO_3$ biominerals mapped with 20-nm resolution" Biophysics@Rome, ISM-CNR, Rome, Italy, May 22-23, 2014.
96	"Crystal orientation patterns in nacre" DOE-BES-Geosciences Symposium. Gaithersburg, MD, May 15-16, 2014.
95	"Mechanisms of crystal growth in natural biominerals" Materials Research Society Spring Meeting, San Francisco, CA, April 21-25, 2014.
94	"Biology/biomaterials talk – importance of materials research facilities", NSF Synchrotron Subcommittee Workshop, National Science Foundation, Arlington, VA, Jan 11-12, 2014.
93	"Particle-mediated crystal growth – The biomineral context", DOE Workshop on "Particle-Mediated Crystal Growth", Berkeley, CA, Dec. 12-14, 2013.
92	"Patterns of nanocrystal orientation in calcium carbonate biominerals", SSRL Workshop on Environmental Carbon Science, Stanford, CA, Oct. 1st, 2013.
91	"PIC-mapping of biomineral crystals using PEEM" 19th International Vacuum Conference, Paris, France, Sep. 9-13, 2013.

90	"Crystal lattice tilting in prismatic calcite" XXII International Materials Research Congress, Cancun, Mexico, Aug. 11-16, 2013.
89	"Phase transitions and their energetics in calcite biominerals" American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.
88	"Biomineralization: how living organisms harness physical and chemical mechanisms to form their hard biomineral skeletons", DBIO Tutorial Course on "New Direction in Biological Physics", American Physical Society March Meeting, Baltimore, MD, March 17, 2013.
87	"Phase transitions and their energetics in calcite biominerals" Geosciences Research Program, Office of Basic Energy Sciences, Geochemical Probes and Processes, Gaithersburg, MD, March 14-15, 2013.
86	"Phase transitions in $CaCO_3$ biominerals mapped with 20-nm resolution" 142nd TMS annual meeting, San Antonio, TX, March 3-7, 2013.
85	"Mapping the amorphous-to-crystalline transitions in $CaCO_3$ biominerals, with 20-nm resolution" Advanced Light Source Users' Meeting, Berkeley, CA, October 8-9, 2012.
84	"Mapping the amorphous-to-crystalline transitions in $CaCO_3$ biominerals, with 20-nm resolution" Symposium on 3D Electron Microscopy, Wisconsin Institute for Discovery, UW-Madison, September 28th, 2012.
83	"Mapping the amorphous-to-crystalline transitions in $CaCO_3$ biominerals, with 20-nm resolution" Materials Research Society Spring Meeting, San Francisco, CA, April 9-13, 2012.
82	"Pattern formation in mollusk shell nacre: dependence on environmental temperature" Growth and form: pattern formation in biology, Aspen Center for Physics, January 2 – 7, 2012.
81	"Self-sharpening mechanism of the sea urchin tooth" 4th International Conference on Mechanics of Biomaterials & Tissues, Waikoloa, Big Island, Hawaii, December 11-14, 2011.
80	"Mapping the amorphous-to-crystalline transitions in $CaCO_3$ biominerals, with 20-nm resolution". DOE-BES-Geosciences Symposium on Geochemical Evolution of Dynamical Systems. Gaithersburg, Maryland, September 8-9, 2011. Winner of the DOE-Geosciences-Geochemistry "Best presentation award".
79	"Mapping the amorphous-to-crystalline transitions in $CaCO_3$ biominerals, with 20-nm resolution" Goldschmidt 2011, Prague, Czech Republic, August 14-19, 2011.
78	"Newly discovered ultrastructure in nacre" Gordon Research Conference on Thin Film and Crystal Growth Mechanisms, University of New England – Biddeford, ME, July 17-22, 2011.
77	"Experiments at the cutting-edge of biomineralization: theory must boldly go where no experiment has been before, and probably never will" CECAM Workshop on "Grand Challenges in Understanding Interfaces Between Hard and Soft Matter", Lausanne, Switzerland, May 11-14, 2011.
76	"Involving undergraduates in interdisciplinary research: The physics of biomineralization" American Physical Society March Meeting, Dallas, TX, March 21-25, 2011. http://meetings.aps.org/Meeting/MAR11/SessionIndex2/?SessionEventID=146800

75	"Biomineralization: the burning questions" Australian Colloids and Interface Symposium, Keynote talk, Hobart, Australia, Jan. 30-Feb. 3, 2011.
74	"Amorphous-to-Crystalline Transitions in Calcite Biominerals" Geological Society of America annual meeting, Denver, CO, Oct. 31st, 2010.
73	"Phase transitions in sea urchin biominerals" ALS-Worshop: X-Ray Spectromicroscopy and Photoemission Electron, Users' Meeting of the Advanced Light Source, Berkeley, CA, October 14, 2010.
72	"Co-orientation mechanisms in biominerals" Gordon Research Conference on Biomineralization, Colby-Sawyer College, New London, NH, Aug. 15-20, 2010.
71	"Protein and Nanoparticle Self-Assembly in Natural Biominerals" Materials Research Society Meeting, San Francisco, CA, April 5-9, 2010.
70	"Physics in the Arts" American Association of Physics Teachers (AAPT), Washington D.C. Feb. 13-17, 2010.
69	"Biominerals" MathBio-2, Interdisciplinary Biomimage Informatics Symposium, Madison WI, Nov. 19-20, 2009.
68	"Ordering mechanisms in biominerals" Users' Meeting of Advanced Light Source, Berkeley, CA, October 15-17, 2009. One user-talk selected among the 2000+ ALS users.
67	"Ordering mechanisms in carbonate biominerals" PEEM Workshop, Banff, Alberta, Canada, September 13-15, 2009.
66	"Biomineral Ultrastructures Revealed by Synchrotron Spectromicroscopy" Denver X-Ray Conference, Denver CO, July 27-31, 2009.
65	"Biomineral ultrastructure" Materials Research Society Spring Meeting, San Francisco, CA, April 13-17, 2009.
64	"Experiments and theory of biomineral formation" DOE-Geosciences Symposium on Experimental and Theoretical Geochemistry, Annapolis MD, March 12-13, 2009.
63	"Biomineral formation: spectromicroscopy experiments and theoretical simulations" Materials Research Society Fall Meeting, Boston, MA, December 1-2, 2008.
62	"X-ray linear dichroism in biominerals" Canadian Chemistry Conference, Winnipeg, Manitoba, May 26-30, 2007.
61	"Crystallographic Order and Disorder in Nacre" PUPA Gilbert, RA Metzler, Mike Abrecht, Ronke M. Olabisi, Daniel Ariosa, Christopher J. Johnson, BH Frazer, SN Coppersmith. Poster selected as a Hot Topic for invited 5-minute presntation. Gordon Research Conference on Biomineralization, Colby-Sawyer College, New London, NH, July 30 - August 4, 2006.
60	"XANES in Nanobiology" 13th International Conference on X-ray Absorption Fine Structure (XAFS13). Stanford University, Stanford, California, USA, July 9-14, 2006.
59	"X-PEEM in Nanobiology and Nanomedicine" PhotoElectron Emission Microscopy (PEEM) Workshop, Diamond Light Source, Oxfordshire, UK, July 11-12, 2006.
58	"High-resolution spectromicroscopy of proteins and biominerals" Frontier Applications of X-Ray Science in Biology with an ERL X-Ray Source, Cornell University, Ithaca, New York, June 21-22, 2006.

57	"Soft-x-ray spectromicroscopy of pristine tissues: biominerals, prions and cancer therapies" Workshop on Molecular Form and Function: Probing Intact Tissues using Synchrotron Light, Canadial Light Source, University of Saskatoon, Saskatchewan, Canada, June 16, 2006.
56	"The organic-mineral interface in biominerals" Mineralogical Society of America, short course on Molecular Geomicrobiology, Berkeley, CA, Dec 3-4, 2005.
55	"What photoelectron spectromicroscopy could do for paleontology and archaeology" Synchrotron Radiation Techniques in Palaeontology and Archaeology Workshop, Canadian Light Source, Saskatoon, Sasketchewan, November 19, 2005
54	"The organic-inorganic interface in biominerals" Imaging Nanoscale Structure in Biominerals: New Results and Challenges, National Synchrotron Light Source, May 23, 2005.
53	"Organic-inorganic interface in biominerals" 2005 Meeting of the Microscopical Society of Canada, McMaster University, Hamilton, Ontario, Canada, May 18-20, 2005.
52	"Curing incurable cancers" Celebrating Women in Science Symposium, University of Wisconsin at Madison, Chemistry Department, April 9, 2005.
51	"Organic-inorganic templates in biomineralization of shells, bone, teeth, and bacterial biofilms" American Physical Society March Meeting, Los Angeles, CA, March 21-25, 2005.
50	"Analysis with a Synchrotron X-Ray Microscope" Symposium on Microspectroscopic Characterization of Materials Using Synchrotron Radiation, Pittsburgh Conference 2005, Orlando, FL, Feb. 27-March 4, 2005.
49	"Biophotonics in cancer therapy" Wisconsin life Sciences and Venture Conference, Inside the Labs at UW-Madison, Where Science Spawns Novel Therapies. Monona Terrace, Madison, WI, Nov. 16-17, 2004.
48	"The past, present and future of soft-x-ray spectromicroscopy" Workshop on Frontiers in Soft X-ray, VUV and Infrared Research. SRC Users' Meeting, October 15-16, 2004.
47	"The organic-inorganic interface in biominerals: spectromicroscopy of templates at the molecular level" Tutorial talk, SRC Users' Meeting, October 15-16, 2004.
46	"Summary on the past, present and future of soft-x-ray spectromicroscopy" Workshop on Frontiers in Soft X-ray, VUV and Infrared Research. The Pyle Center, Madison, WI, September 16-18, 2004.
45	"Cells, tissues and minerals: a fresh look with X-PEEM" Workshop on Frontiers in Soft X-ray, VUV and Infrared Research. The Pyle Center, Madison, WI, September 16-18, 2004.
44	"Spectromicroscopy of cells, tissues and minerals at the 10-100 nanometer scale" Workshop on Frontier Science Using Soft X-Rays, Advanced Photon Source, Argonne, Il, August 5-6, 2004.
43	"Organic-inorganic templates in biomineralization" From Solid State to Biophysics II, Cavtat, Croatia, June 26-July 2, 2004.
42	"Detectors for experiments at synchrotron light sources" International Committee for Future Accelerators (ICFA), Instrumentation School, Rio de Janeiro, Brazil, December 2003 (cancelled).

41	“How synchrotron radiation can help cancer therapy and geomicrobiology” Second International Conference on Materials for Advanced Technologies (ICMAT 2003), Singapore, December 2003 (cancelled).
40	“Iron at the L-edge: spectromicroscopy of Fe minerals and Fe oxidizing bacteria” American Geological Union, December 2003.
39	“Recent SPHINX Results in Cancer Therapy and Geomicrobiology” 86th Conference of the Canadian Society for Chemistry and 39th Congress of the International Union of Pure and Applied Chemistry (IUPAC), Ottawa, Ontario Canada, August 10-15, 2003.
38	“Knights of the Periodic Table, American Association of Physics Teachers, Madison, WI, August 4-6, 2003.
37	“Micro-XANES of cells tissue and minerals” CAMD Workshop on Biological Applications of Synchrotron Radiation, Baton Rouge, LA, June 2-6, 2003
36	“Synchrotron Spectromicroscopy in Cancer Research and Geology” 11th International Conference on Solid Films and Surfaces - ICSFS-11, Marseille, France, July 8-12, 2002.
35	“X-ray spectromicroscopy of gadolinium in glioblastoma cells and tissue for GdNCT” Workshop on “Applications of Synchrotron Radiation in the Life Sciences”, Saskatoon, Sasckatchewan, Canada, March 22-23, 2002.
34	“Gadolinium in glioblastoma cells and tissue for GdNCT” Biological Applications in Low and Intermediate Energy Synchrotron Radiation, ISA, University of Aarhus, Denmark, 3 - 6 October3-6, 2001.
33	“20-nm Microchemical Analysis with Synchrotron Light for Cancer Therapy and other Biomedicaal Problems” First International Biophotonics Symposium, Madison, WI, Aug. 19-21, 2001.
32	“Synchrotron Spectromicroscopy: from Cancer Research to Materials Science” Workshop on Emerging Techniques in Screening and Imaging Science, University of Wisconsin, Madison, October 19, 2000.
31	“Synchrotron Spectromicroscopy: from Cancer Research to Materials Science” Emerging Techniques in Screening and Imaging Sciences Workshop, Madison WI, October 19, 2000.
30	“PEEM: State of the Art and Future Directions for Microchemical Analysis in Biological and Materials Science Samples” Canadian Light Source Spectromicroscopy Workshop, Saskatoon, SK, Canada, November 14, 1999.
29	“Spectromicroscopy of Trace Elements in Biology and Medicine” Swiss Light Source Workshop, Brunnen, Switzerland, October 26-30, 1999.
28	“Biophotonics” Physics Department Centennial, University of Wisconsin, Madison, WI, October 8-9, 1999.
27	“Frontiers Of X-Ray Spectromicroscopy In Biology And Medicine” 18th International Conference on X-ray and Inner-Shell Processes, X99, Chicago, Illinois, USA, August 23 - 27, 1999, Chicago, August 23-27, 1999.
26	“My Suggestions for the Future of Research in Italy” Italian National Research Council Meeting on "Research, Innovation and Enterprise", Rome, Italy, November 23-24, 1998.

25	“Synchrotron Imaging Photoelectron Spectromicroscopy with MEPHISTO at SRC” International Workshop on Spectromicroscopy, Synchrotron Radiation Center, University of Wisconsin-Madison, October 23-25, 1998.
24	“Highlights from the International Workshop on Spectromicroscopy” 1998 Users Group Meeting, Synchrotron Radiation Center, University of Wisconsin-Madison, October 23, 1998.
23	“Synchrotron spectromicroscopy for the optimization of brain cancer therapy” 1998 Gordon Research Conference on Electron Spectroscopy, New England College, Henniker, NH, July 26-31, 1998.
22	“MEPHISTO: a novel synchrotron imaging photoelectron spectromicroscope” X-Ray Workshop of 1998 Microscopy Society of America Conference, Atlanta GA, July 16- 19, 1998.
21	“The MEPHISTO spectromicroscope reaches 50 nm spatial resolution” Scanning 98, Baltimore MD, May 9-12, 1998.
20	“Why we need spectromicroscopy to cure brain cancer” Annual Symposium of the Florida Chapter of the American Vacuum Society and 16th Annual Meeting of the Florida Society for Microscopy, Orlando FL, February 23-26, 1998.
19	“Spectromicroscopy with MEPHISTO at the Synchrotron Radiation Center” 1997 Users Group Meeting, Synchrotron Radiation Center, University of Wisconsin-Madison, October 24-25 1997.
18	“Imaging Photoelectron Synchrotron Spectromicroscopy of Neuron Systems with MEPHISTO” Review presentation in "Biological Microanalysis and Imaging", Scanning Microscopy 1997 Meeting, Chicago IL, May 10-15 1997.
17	“State-of-the-Art Spectromicroscopy of Brain Cells” Conference on image processing and technology, Santa Barbara, CA, Dec. 9-11, 1996.
16	“Imaging Synchrotron Spectromicroscopy with MEPHISTO in Neurobiology” International School on Structural Techniques for Advanced Radiation Sources, Camerino, Italy, September 1996.
15	“MEPHISTO: a Spectromicroscope for Microchemical Analysis of Life and Materials Science Systems” International Conference on X-Ray Microscopy and Spectromicroscopy, XRM 96, Würzburg, Germany, August 19-23, 1996.
14	“New Possibilities Opened by Synchrotron Spectromicroscopy in Neurobiology” Third International School and Symposium on Synchrotron Radiation in Natural Science '96, Jaszowiec, Poland, May 31 - June 8, 1996.
13	“Imaging Synchrotron Spectromicroscopy: the Local Chemistry of Materials Is no Longer a Mystery, Materials Research Society” 1996 Spring Meeting, San Francisco, April 8-12, 1996.
12	“Synchrotron Radiation Spectromicroscopy: Imaging Toxic Elements in Neural Systems” First International Conference on Life Science and Biotechnology, Harima Science Garden City, Japan, November 8-9 1994.
11	“Synchrotron Radiation Spectromicroscopy: Systematic Results” European Symposium on Frontiers in Science and Technology with Synchrotron Radiation, Aix-en-Provence, France, April 5-8 1994.

10	“Spectromicroscopy in Biophysics” Colloquia Patavina on "Aluminum in Chemistry Biology and Medicine”, Padua, Italy, 1993.
9	“Microscopia Fotoelettronica di Reti di Neuroni” II Scuola Nazionale di Luce di Sincrotrone e Ricerca Chimica, S. Margherita di Pula (CA), Italy, September 7-11, 1992.
8	“Biological Spectromicroscopy with Synchrotron Radiation: Instrumentation Aspects” Fourth International Conference on Biophysics and Synchrotron Radiation, Satellite Meeting: Advanced SR Sources and Beamline Instrumentation for Biological Studies, Kobe, Japan, August 28-29, 1992.
7	“High Resolution Photoelectron Spectromicroscopy of Neuron Networks” Tenth International Conference on Vacuum Ultraviolet Radiation Physics, Paris, July 27-31, 1992.
6	“Photoelectron Spectromicroscopy in the Life Sciences” NATO Advanced Study Institute: New Directions in Research with Third-Generation Soft X-Ray Synchrotron Radiation Sources, Maratea, Italy, June 28 - July 10, 1992. 3 lectures.
5	“Time Resolved Experiments in the Frequency Domain Using Synchrotron Radiation” 4th International Conference on Synchrotron Radiation Instrumentation, Chester, U. K., 15-19 July, 1991.
4	“Photoelectron Spectromicroscopy in the Life Sciences” Italian National Research Council Meeting on Synchrotron Radiation at Trieste and Grenoble, CNR Rome, 1991.
3	“X-Ray Spectromicroscopies in the 1990's: a Novel Instrument in the Life Sciences” Third European Congress on Cell Biology, Firenze, 1990.
2	“Photoemission Enters the Life Sciences” X-90, 15th International Conference on X- Ray and Inner-Shell Processes, Hot Topics, Knoxville, Tennessee, USA, 1990.
1	“Photoelectron Microscopy of Neurons” Synchrotron Radiation Microscopy and Holography Workshop, Trieste, 1990.

Contributed talks are not listed.

Colloquia and Seminars:	
123	“The methods I developed: PIC, Component, and Myriad Mapping of biominerals” SPIE/ Optica Student Chapter Spring 2024, Ask Me Anything talk, UW-Madison, Feb 29, 2024.
122	“Coral biomineralization” Centre Scientifique de Monaco, Monte Carlo, Monaco, January 16, 2024.
121	“Calcite twinning in mollusk shells and Carrara marble” Friends of Calcite seminar Series on Zoom, Jan 13, 2024.
120	“Saving coral reefs through science and art” Madison Museum of Contemporary Art (MMoCA), Madison, WI, October 22, 2023.
119	“Coral reef formation from nanometers to kilometers” Pierce Laboratory Seminar, Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, MA, Sep 14, 2022.

118	"The hidden structure of human and mouse enamel" Zoom Seminar Series on Dental Enamel, Feb 25, 2021.
117	"How organisms make crystals" Earth and Planetary Science, Department Colloquium, University of California Berkeley, CA, October 22, 2020. Held on Zoom.
116	"Visualization of invisible nanostructure in crystalline biominerals: shells, corals, teeth", McPherson Eye Research Institute Seminar, UW-Madison, WI, December 10, 2019.
115	"Life Crystals" Dept. of the Geophysical Sciences seminar, University of Chicago, November 1, 2019.
114	"Life Crystals" Verbrugge Lecture, Carleton University, October 10, 2019.
113	"Life Crystals", Advanced Light Source Colloquium, Lawrence Berkeley National Laboratory, Berkeley, CA, April 24th, 2019.
112	"Life Crystals" John Lawrence Seminar Series, Biosciences Area, Lawrence Berkeley National Laboratory, Berkeley, CA, April 23rd, 2019.
111	"How organisms form crystals" Hamilton Colloquium, Department of Physics, Princeton University, Princeton, NJ, April 18th, 2019.
110	"Life Crystals" NSF Distinguished Lecture Series in Mathematical and Physical Sciences, National Science Foundation, Alexandria, VA, April 15, 2019.
109	"Nanoscale amorphous precursors and their phase transitions in diverse biominerals" Advances in Materials seminar, Ecole Polytechnique Fédérale de Lausanne, Switzerland, March 18th, 2019.
108	"The hidden structure of human and mouse enamel" Department of Orofacial Sciences seminar, UC-San Francisco, Dec. 18, 2018.
107	"Amorphous particle attachment in biominerals across phyla and through eons" Geological and Planetary Sciences seminar, California Institute of Technology, Pasadena, CA, May 23, 2018.
106	"Growth of biominerals deduced from their nano- and micro-crystal orientation patterns" Geological and Planetary Sciences seminar, California Institute of Technology, Pasadena, CA, May 22, 2018.
105	"Crystallization by Particle Attachment in Marine Biominerals" Materials Science and Engineering seminar, Lehigh University, Philadelphia, PA, May 1, 2018.
104	"Spherulitic Growth of Coral Skeletons and Synthetic Aragonite: Nature's 3D-printing" Materials Science and Engineering seminar, University of California Berkeley, CA, April 19, 2018.
103	"A soft- and a tender-x-ray beamline for biomineralization" 30-min presentation to the Scientific Advisory Committee, Advanced Light Source, LBNL, Berkeley, CA, April 17, 2018.
102	"How corals build reefs", Quantitative Biology (qBio) seminar, Wisconsin Institute for Discovery, UW-Madison, February 21, 2018.

101	"Spherulitic Growth of Coral Skeletons and Synthetic Aragonite: Nature's 3D-printing", Seminar in Materials Science and Engineering, University of Michigan, Ann Arbor, February 16, 2018.
100	"Coral skeleton growth", Seminar in Departamento de Mineralogia y Petrología, Universidad de Granada, Spain, September 29, 2017.
99	"Coral biomineralization" Advanced Light Source Seminar Series, Lawrence Berkeley National Laborotory, Berkeley, CA, September 13, 2017.
98	"Marine Biomineral Formation" Research Experience for Undergraduate (REU) Seminar Series, Engineering School, University of Wisconsin, Madison, WI, June 29th, 2017.
97	"Biomineralization of Nacre" Seminar to the Materials Research Interest Group, Department of Chemistry, Cambridge University, Cambridge, UK, May 26th, 2016.
96	"Carbonate Biomineralization" Geological Sciences Seminar, Department of Geological Sciences Stanford University, Stanford, CA, May 17th, 2016.
95	"Nacre and the environment" Earth and Planetary Sciences Colloquium, University of New Mexico, Albuquerque, NM, April 8th, 2016.
94	"Formation mechanisms of carbonate biominerals" Weeks Lecture, Geoscience Department, University of Wisconsin, Madison, WI, March 4th, 2016.
93	"Formation mechanisms of carbonate biominerals" Seminar Series "From Biomineralization to Materials Science", Technical University of Dresden, B Cube - Center for Molecular Bioengineering, Dresden, Germany, February 1st, 2016.
92	"The physics of color" Fourth Tuesday Faculty Dinner&Lecture established in 1930 and given by a different UW-faculty every month, attended by faculty, UW-Madison, November 24th, 2015.
91	"Narrowly distributed angle spreads in biomineral crystals: growth from solution or particle attachment" Max Planck Institute of Colloids and Interfaces, Golm, Germany, August 24th, 2015.
90	"Nacre nanostructure as a T proxy" IsTerre Grand Seminaires, University of the Alps, Grenoble, France, July 2nd, 2015.
89	"Patterns of crystal orientation at the nanoscale in biominerals" Physical Chemistry Seminar, University of Wisconsin, Madison, WI, March 17th, 2015.
88	"Amorphous precursors to biomineral formation" Physics Colloquium, University of Massachusetts, Amherst, MA, March 11th, 2015.
87	"Biominerals and their amorphous precursors" Geobiology/Paleobiology Seminar Series, Harvard University, Cambridge, MA, February 24th, 2015
86	"Patterns of crystal orientation at the nanoscale in biominerals" Applied Physics Colloquium, Harvard University, Cambridge, MA, February 6th, 2015.
85	"Biomineralization" Public Talk, Radcliffe Institute for Advanced Study, Harvard University, Cambridge, MA, October 8th, 2014.
84	"Nanocrystalline orientation patterns in biominerals" CLASSE Seminar at Cornell High Energy Synchrotron Source (CHESS), Cornell University, Ithaca, NY, April 3, 2014.

83	"Nanocrystalline orientation patterns in biominerals" Colloquium at Princeton University, Department of Geosciences, Princeton, NJ, April 1, 2014.
82	"Nanocrystalline orientation patterns in biominerals" Colloquium at Johns Hopkins University, Department of Materials Science, Baltimore, MD, March 12, 2014.
80	"Biomineralization" Seminar for freshmen Women in Science and Engineering (WISE) Residential Undergraduate Students, UW-Madison, Gordon Commons, Nov. 19, 2013.
79	"Mapping the amorphous-to-crystalline transitions in $CaCO_3$ biominerals with 20-nm resolution" CU-Boulder Condensed Matter Physics Seminar, Boulder, CO, Oct. 17, 2013.
78	"Crystallization mechanisms in biominerals" CU-Boulder Physics Colloquium, Boulder, CO, Oct. 16, 2013.
77	"Biominerals and their formation mechanisms" Frontiers in Chemical Imaging Seminar, Pacific Northwest National Laboratory, Richland, WA, July 30-31, 2013.
76	"Mapping the amorphous-to-crystalline transitions in CaCO3 biominerals, with 20-nm resolution" Department of Chemistry Seminar, Dalhousie University, Halifax, Nova Scotia, Canada, October 26th, 2012.
75	"Mapping the amorphous-to-crystalline transitions in CaCO3 biominerals, with 20-nm resolution" Department of Physics Seminar, Memorial University, St. Johns, Newfoundland, Canada, October 24th, 2012.
74	"Mollusk shells and temperature" Very Informal Seminar, Wisconsin Institute of Discovery, University of Wisconsin, Madison, WI, June 15th, 2012.
73	"Kelvin, Pascal, and mollusk shells" Physics Department Colloquium, University of Wisconsin, Madison, WI, March 16th, 2012.
72	"Mapping the Amorphous-to-crystalline transitions in CaCO3 biominerals with 20-nm resolution" UCLA, Earth and Planetary Science Department Colloquium, Los Angeles, CA, February 2nd, 2012.
71	"Nacre ultrastructure" Chemistry and Materials Science joint colloquium, UC-Davis, Davis, CA, January 18th, 2012.
70	"Crystallization mechanisms in biominerals" ETH-Zurich, Computational Science, Lugano, Switzerland, May 17th, 2011.
69	"Crystallization Mechanisms in Biominerals" UC-Berkeley Chemistry Colloquium, Berkeley, CA, April 12, 2011.
68	"Mother-of-pearl = Nacre" UW-Materials Science seminar, Madison, WI, Mar. 8, 2011.
67	"Biologically-controlled mineralization" UW-Materials Science Colloquium, Madison, WI, Feb.10, 2011.
66	"Biologically-controlled phase transitions in biominerals" UW-Chemistry Colloquium, Madison, WI, Dec. 3, 2010.
65	"Formation mechanisms of natural biominerals" Northwestern University-Materials Science Colloquium, Evanston, IL, Nov. 23, 2010.

64	"Nanostructure and formation mechanisms of natural biominerals" University of Florida-Chemistry Colloquium, Gainesville, FL, Nov. 16, 2010.
63	"The physics of biominerals" Lawrence University-Physics Colloquium, Oct. 28, 2010.
62	"Ordering mechanisms in sea urchin biomineral". NPAC Forum Seminar (Nuclear/Particle/Astro/Cosmo). UW-Madison, March 3rd, 2010.
61	"Ordered nanostructures in sea urchins" Fourth Tuesday Faculty Dinner&Lecture established in 1930 and given by a different UW-faculty every month, attended by faculty, UW-Madison, September 22nd, 2009.
60	"Physical Principles of Skeletal Minerals Revealed with Spectromicroscopy" Advanced Photon Source Colloquium, Argonne National Lab, August 5th, 2009.
59	"The sea urchin tooth: co-orientation and self-sharpening mechanisms" Weizmann Institute of Science, Rehovot, Israel, June 30th, 2009.
58	"This and that: Biomineralization, Color, my Life" a 90-minute talk during dinner to Women In Science and Engineering (WISE) at UW-Madison, Gordon Commons dorm Madison, WI, February 18th, 2009.
57	"Biomineral formation: spectromicroscopy experiments and theoretical simulations" Molecular Foundry, Lawrence Berkeley National Lab, Berkeley, CA, January 13th, 2009.
56	"Biomineral formation: spectromicroscopy experiments and theoretical simulations" Physics Colloquium, Arizona State University, Tempe, AZ, September 17th, 2008.
55	"Biominerals, tough structures of life" Conversations in Science, Wisconsin Initiative for Science Literacy, Edgewood College, Madison, WI, March 13, 2008. (See outreach.)
54	"Biomineral order: spectromicroscopy probes the crystal architecture of bulk biominerals" Weizmann Institute of Science, January 22th, 2008.
53	"Introduction to spectromicroscopy: the organic-mineral interface" Weizmann Institute of Science, January 20th, 2008.
52	"Spectromicroscopy in Nanobiology and Nanomedicine" Advanced Light Source and Center for X-Ray Optics seminar, Advanced Light Source , Berkeley, California, June 7, 2006.
51	"Mother of pearl: an exceptionally tough biomineral" seminar for NSF-REU students, UW-SRC, July 1, 2005.
50	"Organic-Inorganic Templates" seminar for NSF-REU students, UW-SRC, July 20, 2004.
49	"X-Ray Photoelectron Emission Spectromicroscopy reveals that Polysaccharides Template Assembly of Nanoscale Crystal Fibers" Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences, Fuzhou, Republic of China, May 24, 2004.
48	"Multidisciplinary Science at SRC: Present and Future" NSF Intermin Review Committee's site visit at SRC, March 30, 2004.
47	"Why blue and yellow don't make green: simplifying light, color, and color mixing" Center for the Integration of Research, Teaching and Learning, Delta Round Table, University of Wisconsin, Madison, Red Gym, March 23, 2004.

46	“The SRC, our science, and where we stand compared to other synchrotrons” talk to the SRC staff, March 11, 2004.
45	“Gadolinium Neutron Capture Therapy” University of Wisconsin Comprehensive Cancer Center Retreat, March 6, 2004.
44	“Multidisciplinary Science at SRC: Past, Present and Future” Dean’s Outside Review Committe, site visit at SRC, Feb. 27, 2004.
43	“Biophysics” Introductory Seminars for first year graduate students in Physics and Physics majors, UW-Madison, November 21, 2003.
42	“A new therapy for brain cencer” Faculty Coterie, University Club, Madison, WI, October 14, 2003.
41	“Knights of the Periodic Table” Biological Imaging Lectrures, Madison, WI, October 7, 2003.
40	“Biophysics” Introductory Seminars for first year graduate students in Physics and Physics majors, UW-Madison, October 24, 2002.
39	“Creativity across disciplines” Creativity Panel - University of Wisconsin Undergraduate Symposium 2002, Madison, WI, April 18, 2002.
38	“Spectromicroscopy at SRC” Deans Outside Review Committee, UW-Synchrotron Radiation Center, April 2002.
37	“Microchemistry at the UW-Synchrotron Radiation Center” UW-Madison, Department of Chemistry, March 18, 2002.
36	“Biophysics” Introductory Seminars for first year graduate students in Physics and Physics majors, UW-Madison, October 26, 2001.
35	“Synchrotron microchemical analysis to cure brain cancer and unravel the mysteries of early Earth” Biophysical chemistry talk, UW-Madison, Department of Chemistry, October 24, 2001.
34	“Low Energy Synchrotron Light in Environmental Science may be better” Meeting of the Environmental Scientists in the Midwest, Synchrotron Radiation Center, Stoughton, WI, Aug. 14, 2001.
33	“Physics and Medicine Get Together to Cure Brain Cancer” UW-Madison Physics Colloquium, March 23, 2001.
32	“Gadolinium Microimaging for Gd Neutron Capture Therapy (GdNCT)” UW-Madison, Medical Physics, Feb. 5, 2001.
31	“The interdisciplinarity of spectromicroscopy: Cancer research, geomicrobiology, geology and archaeology” UW-Madison, Bio-Medical Engineering, Jan. 29, 2001.
30	“Physics and Medicine Get Together to Cure Brain Cancer” Chaos and Complex Systems Seminar, University of Wisconsin - Madison, November 21, 2000.
29	“Gadolinium Neutron Capture Therapy” SyMBiosis Interdisciplinary Seminar, UW Medical Sciences, September 14, 2000.

28	“Introductory Seminar on Biophotonics” for new Graduate Students in Physics, UW- Physics Department, September 7, 2000.
27	“Microimaging of Gd in Glioblastoma cells and tissues” Imaging and Radiation Sciences Seminar, Department of Human Oncology, University of Wisconsin, Madison, WI, July 18, 2000.
26	“Synchrotron Spectromicroscopy: how medicine, biology and physics can benefit from a “physics technique”” University of the Basque Country, Department of Physics, San Sebastian, Spain, June 30, 2000.
25	“Spectromicroscopy at SRC” NSF site visit for M$25, 5 year grant renewal for the UW-Synchrotron Radiation Center, May 2000.
24	“Synchrotron Spectromicroscopy: How Medicine, Biology and Physics Can Benefit from a "Physics Technique"”, Portland State University, Department of Science, Portland, OR, April 14, 2000.
23	“Microchemical Analysis of Brain Cancer, Bacteria and Rocks: the Synergy of Spectromicroscopy” Portland State University, Sigma Xi Seminar, Department of Science, Portland, OR, April 13, 2000.
22	“Spectromicroscopy: Life and Materials Science Are Using it. What’s Next?” The Canadian Light Source!, University of Manitoba, Winnipeg, Manitoba, Canada, April 7, 2000.
21	“Hard-X-Ray PEEM: a Good or a Bad Idea?” Advanced Photon Source, Argonne National Laboratory, Argonne, Illinois, December 20, 1999.
20	“Spectromicroscopy: Breaking the Boundaries between Disciplines” Montana State University, Bozeman, Montana, June 4, 1999.
19	“Spectromicroscopy: Breaking the Boundaries between Disciplines” Interview talk, Biophotonics cluster hire, University of Wisconsin, Madison, March 5, 1999.
18	“Synchrotron spectromicroscopy of Biosystems” Northern Illinois University, Dept. of Physics, November 6, 1998.
17	“Synchrotron spectromicroscopy: a complicated name for a very simple technique that can solve so many problems in science!” Italian Science Seminar, Institute of Culture, Italian Embassy, London, UK, June 3, 1998.
16	“Synchrotron Spectromicroscopy in the Life Sciences” California Institute of Technology, May 4, 1998.
15	“Synchrotron Spectromicroscopy in Biophysics” Northwestern University, Evanston, Illinois, April 1, 1998.
14	“Synchrotron Spectromicroscopy” interview talk, Jet Propulsion Laboratory/California Institute of Technology, March 27, 1998.
13	“State of the Art Spectromicroscopy in Neurobiology” Physical Science Laboratory (PSL) Colloquia, University of Wisconsin-PSL, July 1997.
12	“Photoelectron Spectromicroscopy with Synchrotron Radiation: Principles and Application to Element Mapping in Biological Samples” Dept. Chemistry, University of Bremen, Germany, April 1997.

11	“State of the Art Spectromicroscopy in Neurobiology” Paul Scherrer Institut, Villigen, Switzerland, January 1997.
10	“Synchrotron Spectromicroscopy: Possible Applications” University of Nebraska, April 1995.
9	“Synchrotron Radiation Spectromicroscopy of Neural Systems” Academia Sinica, Taipei, Taiwan, September 1994.
8	“Photoelectron Spectromicroscopy on Neuron Networks” interview talk, Paul Scherrer Institute, Villigen, Switzerland, 1993.
7	“Photoelectron Spectromicroscopy on Neuron Networks: Al and Cr can be located” Centro di Studio per la Fisiologia e la Biochimica delle Emocianine e di Altre Metallo- Proteine, University of Padua, Italy, 1993.
6	“Photoelectron Spectromicroscopy on Neuron Networks: Detection of Trace Elements by XSEM” Trieste, Italy, 1992.
5	“Danni Indotti su Eritrociti da Basse dosi di Radiazioni Ionizzanti” Frascati, Roma, 1990.
4	“Photoelectron spectromicroscopy of neuron networks” Frascati, Rome, Italy, 1990.
3	“Synchrotron radiation techniques applied to solve biological problems” Sincrotrone di Trieste, Italy, 1990.
2	“Scanning tunneling microscopy: application to biological specimens” ENEA-Casaccia, Rome, Italy, 1988.
1	“Biological membranes structure and dynamics as revealed by time resolved fluorescence” Dept. of Physics, University of Cagliari, Italy, 1988.

Teaching Experience at Swiss Institute of Technology (EPFL)

- Experimental Physics-Laboratory courses (Traveaux pratiques IV), 1st and 2nd semester for fourth year Diploma students in Physics at EPFL: 1994-95, 1995-96, 1996-97, 1997-98.
- Preparation of exercises for Prof. Margaritondo's Physics class, EPFL, second semester 1996/7.
- Diploma thesis advisor for undergraduate students, 1995-96, 1996-97.
- Ph.D. thesis advisor for graduate students, 1996-2004.

Teaching Experience at University of Wisconsin - Madison

- Physics 109, Physics in the Arts, Spring 2000 (180 students, non-science majors).
- Trainer in the Biophysics Graduate Program, January 2000-present.
- Physics 499, Biophysics, 3 credit course for one student, Spring 2000.
- Physics 301, Physics Today, one lecture, March 2000.
- Physics 109, Physics in the Arts, Fall 2000 (180 students, non-science majors).
- Physics 109, Physics in the Arts, Spring 2001 (180 students, non-science majors).
- Physics 109, Physics in the Arts, Fall 2001 (180 students, non-science majors).

- Physics 505, Microscopy of Life, Spring 2002 (undergraduate and graduate students, cross-listed in 8 different departments in Physical and Life Sciences).
- Physics 109, Physics in the Arts, Fall 2002 (180 students, non-science majors).
- Physics 301, Physics Today, one lecture, February 2002.
- Physics 505, Microscopy of Life, Spring 2003 (undergraduate and graduate students, cross-listed in 8 different departments in Physical and Life Sciences).
- Physics 109, Physics in the Arts, Fall 2003 (180 students, non-science majors).
- Physics 619, Microscopy of Life, Spring 2004, now approved by the UW-divisional committee as permanent course, cross-listed in 8 different departments in Physical and Life Sciences).
- Physics 208, honors class, Spring 2004, one lecture.
- Genomic Science, Spring 2004, one lecture.
- Ways of Knowing Biology, Spring 2004, one lecture.
- Physics 109, Physics in the Arts, Fall 2004 (180 students, non-science majors).
- Physics 619, Microscopy of Life, Spring 2005, now approved by the UW-divisional committee as permanent course, cross-listed in 8 different departments in Physical and Life Sciences).
- Physics 208, honors class, Spring 2005, one lecture.
- Physics 109, Physics in the Arts, Fall 2005 (260 students, non-science majors). **Teaching evaluations: 4.15 out of 5.**
- On research leave, Spring 2006.
- Physics 109, Physics in the Arts, Fall 2006 (288 students, non-science majors). **Teaching evaluations: 4.32 out of 5.**
- Physics 207, honors class, Fall 2006, one lecture.
- Physics 208, honors class, Fall 2006, one lecture.
- Physics 619, Microscopy of Life, Spring 2007, cross-listed in 8 different departments in Physical and Life Sciences.
- Physics 207, Genarl Physics (calculus), Fall 2007 (260 students, science and physics majors). **Teaching evaluations: 4.16 out of 5.**
- On sabbatical, Spring 2008.
- Material Science 900, Fall 2008, one lecture.
- Physics 109, Physics in the Arts, Fall 2008 (256 students, non-science majors). **Teaching evaluations: 4.30 out of 5.**
- Physics 109, Physics in the Arts, Spring 2009 (240 students, non-science majors). **Teaching evaluations: 4.58 out of 5.**
- Physics 109, Physics in the Arts, Fall 2009 (256 students, non-science majors). **Teaching evaluations: 4.31 out of 5.**
- Chemistry 860, Spectroscopy, Fall 2009, one lecture.
- Physics 109, Physics in the Arts, Spring 2010 (256 students, non-science majors). **Teaching evaluations: 4.77 out of 5.**

- Physics 207, honors class, Spring 2010, one lecture.
- Physics 208, honors class, Fall 2010, one lecture.
- Physics 104, Genaral Physics (algebra), Fall 2010 (340 students, science majors, non-physics majors, mostly pre-meds). **Teaching evaluations: 3.94 out of 5.**
- Physics 109, Physics in the Arts, Spring 2011 (256 students, non-science majors). **Teaching evaluations: 4.22 out of 5.**
- Chemistry 860, Spectroscopy, Fall 2011, one lecture.
- Physics 109, Physics in the Arts, Fall 2011 (256 students, non-science majors). **Teaching evaluations: 4.32 out of 5.**
- Physics 208, honors class, Spring 2012, one lecture.
- Physics 109, Physics in the Arts, Spring 2012 (256 students, non-science majors). **Teaching evaluations: 4.33 out of 5.**
- Physics 103, General Physics (algebra), Fall 2012 (650 students, science majors, non-physics majors, mostly pre-meds). **Teaching evaluations: 3.39 out of 5.**
- Chemistry 872, Topics in Biophysics. Five 1-hour classes, Sept-Oct. 2012.
- Physics 104, General Physics (algebra), Spring 2013 (580 students, science majors, non-physics majors, mostly pre-meds). **Teaching evaluations: 3.62 out of 5.**
- Physics 109, Physics in the Arts, Fall 2013 (300 students, non-science majors). **Teaching evaluations: 4.32 out of 5.**
- Chemistry 668, Biophysical Spectroscopy. One guest lecture, Fall 2013.
- Physics 109, Physics in the Arts, Spring 2014 (250 students, non-science majors). **Teaching evaluations: 4.12 out of 5.**
- On sabbatical, Fall 2014, Spring 2015.
- Physics 109, Physics in the Arts, Fall 2015 (250 students, non-science majors). **Teaching evaluations: 4.43 out of 5.**
- Chemistry 668, Biophysical Spectroscopy, 1 guest lecture, October 23rd, 2015.
- Physics 207, General Physics, 1 Honors Lecture on “Biomineralization”, November 6th, 2015.
- Physics 301, Physics Today, one lecture, April 2016.
- Physics 109, Physics in the Arts, Spring 2016 (250 students, non-science majors). **Teaching evaluations: 4.35 out of 5.**
- Physics 109, Physics in the Arts, Fall 2016 (250 students, non-science majors). **Teaching evaluations: 4.33 out of 5.**
- Physics 301, Physics Today, one lecture, Apr 2017.
- Physics 109, Physics in the Arts, Spring 2017 (250 students, non-science majors). **Teaching evaluations: 4.41 out of 5.**
- Physics 109, Physics in the Arts, Fall 2017 (250 students, non-science majors).
- Physics 207, General Physics, 1 Honors Lecture on “Coral skeleton growth”, November 10th, 2017.
- Chemistry 668, Biophysical Spectroscopy, 1 guest lecture, November 13th, 2017.

- Physics 109, Physics in the Arts, Fall 2017 (250 students, non-science majors). **Teaching evaluations: 4.37 out of 5.**
- Physics 301, Physics Today, one lecture, February 2018.
- Physics 109, Physics in the Arts, Spring 2018 (250 students, non-science majors). **Teaching evaluations: 4.62 out of 5.**
- Physics 701, Graduate Research Seminar, one seminar, September 14, 2018.
- Physics 109, Physics in the Arts, Fall 2018 (250 students, non-science majors). **Teaching evaluations: 4.67 out of 5.**
- Physics 109, Physics in the Arts, Spring 2019 (250 students, non-science majors). **Teaching evaluations: 4.55 out of 5.**
- Physics 301, Physics Today, one lecture, Feb 2019.
- Physics 109, Physics in the Arts, Fall 2019 (250 students, non-science majors). **Teaching evaluations: 4.32 out of 5.**
- Physics 301, Physics Today, one lecture, February 2020.
- Physics 109, Physics in the Arts, Spring 2020 (250 students, non-science majors).
- Physics 109, Physics in the Arts, Spring 2020 (250 students, non-science majors). **Teaching evaluations: 4.30 out of 5.**
- Physics 109, Physics in the Arts on Zoom during pandemic, Fall 2020 (200 students, non-science majors). **Teaching evaluations: 4.00 out of 5.**
- Chemistry 992, Research Physical Chemistry, 1 Chemistry Bridge student. Spring 2021.
- Physics 299, Directed Independent Study, 2 undergraduate students. Spring 2021.
- Physics 109, Physics in the Arts on Zoom during pandemic, Spring 2021 (220 students, non-science majors). **Teaching evaluations: 4.02 out of 5.**
- Physics 109, Physics in the Arts in-person, Fall 2021 (220 students, non-science majors). **Teaching evaluations: 4.45 out of 5.**
- UC Berkeley, Earth and Planetary Science 331, Geochemistry. One guest lecture, Spring 2022.
- Physics 109, Physics in the Arts, Spring 2022 (250 students, non-science majors). **Teaching evaluations: 4.1 out of 5.**
- Physics 701, 1 guest lecture, “Coral biomineralization”, Sep 28, 2023.
- Physics 109, Physics in the Arts, Fall 2023 (250 students, non-science majors). **Teaching evaluations: 4.4 out of 5.**
- Physics 109, Physics in the Arts, Spring 2024 (250 students, non-science majors). **Teaching evaluations: 4.43 out of 5.**
- Chemistry 116, Chemistry 116, Spring 2024 (1 students for lab experiments 8hrs/week for 8 weeks)**.**
- Physics 109, Physics in the Arts, Fall 2024 (250 students, non-science majors). **Teaching evaluations: 4.64 out of 5.**
- Human Evolutionary Geoscience, EPS 290, UC Berkeley, 1 guest lecture, Fall 2024.

- Physics 109, Physics in the Arts, Spring 2025 (200 students, non-science majors). **Teaching evaluations: 4.44 out of 5.**
- Physics 109, Physics in the Arts, Fall 2025 (220 students, non-science majors). **Teaching evaluations: 4.59 out of 5.**
- Physics 109, Physics in the Arts, Spring 2026 (190 students, non-science majors). **Teaching evaluations: NA.**

Outreach and public lectures

- "Saving coral reefs through science and art", Madison Museum of Contemporary Art (MMoCA), Madison, WI, October 22, 2023.
- Synchrotron Radiation Center Open House, hosting 200-400 people from the general public every year. G. De Stasio has been either a demonstrator or a tour guide for the Open House, 1996-2007.
- Yearly hands-on spectromicroscopy experience for graduate and undergraduate students attending the "Microscopy of Life" course at UW. Spring semesters 2002, 2003, 2004, 2005, 2007.
- Development of "Teaching as Research" and "ConcepTests", both novel teaching evaluation and instant-feedback strategies, with the first source of information being 180 non-science-majoring undergraduate students, attending the "Physics in the Arts" course at UW, Fall 2003. These developments take place within the NSF-funded Center for the Integration of Research, Teaching and Learning (CIRTL), a $10,000,000 project, PI: Matthieu.
- Attending of the CIRTL-DELTA course "Instructional Materials Development", one lecture and one homework per week, Spring 2004.
- Instructor of one hands-on spectromicroscopy experiment, as part of the Pre-college Enrichment Opportunity Program for Learning Excellence (PEOPLE) summer program. The PEOPLE program seeks to support and encourage minority middle school and high school students from Wisconsin and prepare them as future undergraduates. Upon successful completion of the PEOPLE program and admission to the university, PEOPLE students are eligible for full tuition remission for the duration of their studies at UW-Madison. PEOPLE students identified the location of the nucleus in cancer cells, based on the higher density of phosphorus in DNA. The experience lasts approximately 3 hours, and 4-6 students from the 11th grade participate every July. 2005-present.
- A 90-min. lecture and Q&A session for highschool and college science teachers "Biominerals, tough structures of life". Part of the Conversations in Science, Wisconsin Initiative for Science Literacy, Edgewood College, Madison, WI, March 13, 2008. The lecture and Q&A were televised repeatedly on WI cable TV, Channel 10.
- A 5-hour hands-on activity table as part of UW-Madison Physics Fair. At this table Prof. Gilbert and undergraduate student Ian C. Olson invited children and adults to break thin calcite crystals by punching them with a diamond scribe, then they were invited to do the same on small (non-endangered, farmed and inexpensive) abalone shells, to demonstrate how easy it is to break a geologic $CaCO_3$ crystal, and how impossible it is to break nacre. Yet nacre is 95-98% $CaCO_3$. In the same room we also continuously projected 3D SEM images of the microstructure of nacre, a sea uchin and a sea star, while people looked at them through red-cyan glasses. Approximately 500 people from the general public attended this activity table during 5 hours on Saturday February 14th, 2009.
- "This and that: Biomineralization, Color and Color Vision, Autobiography." The major events of my life were described through my paintings, which are surrealist and autobiographical. A 90-

minute talk during dinner to Women In Science and Engineering (WISE) at UW-Madison, The audience were approximately 50 freshling women students at the Gordon Commons dorm, Madison, WI, February 18th, 2009.

- I am one of the 12 physicists, their research and their lives, portrayed in the book "Cool Careers in Physics", by John Johnson Jr., published by Sally Ride Science as one of the many "Cool Careers in Science" books for upper elementary students. These are separate paperback books, with ample distribution in bookstores country-wide. Published January 2010.
  https://www.sallyridescience.com/for_educators/career_books#upper_elementary
- "Physics in the Arts." Invited talk at the American Association of Physics Teachers, Washington DC, February 2010.
- A 5-hour poster presentation at UW-Madison Physics Fair. I and undergraduate student Ian C. Olson showed children and adults two posters (mounted at different heights) on CO_2 sequestration and coccolithophorids. The SEM images were three-dimensional, and people looked at them through red-cyan glasses. Approximately 500 people from the general public visited and were impressed by 5-10 minute talks for 5 hours on Saturday February 20th, 2010.
- The Physics of Color, 1-hour lecture with demonstrations at the Physics Fair, between Wonders of Physics shows, UW-Physics Department. ~300 attendees from the general public. Feb. 19th, 2011.
- Hands-on lab experiments for 15 African American high-school students, as part of their summer Pre-College Enrichment Opportunity Program for Learning Excellence (PEOPLE) http://www.peopleprogram.wisc.edu/. A 4-hour lab on "Additive Color Mixing" on June 25th and a 4-hour lab on "Subtractive Color Mixing" on July 3rd, 2011.
- "Physics in the Arts: color and color perception." Wisconsin Science Festival, Opening night at the UW-Memorial Union Theaters. 10-minute presentation with color demonstrations. ~600 attendees from the general public. See program at: http://www.wisconsinsciencefest.org/program.html. September 22nd, 2011.
- "Biominerals: crystals formed by living organisms" UW-Madison Bascom Hill Society dinner, offered to alumni who donated at least $50,000 to the UW-foundation. One among the 2,000 faculty at UW-Madison is selected to speak each year. November 4th, 2011.
- Expanding Your Horizons: hands-on experiments on the physics of light and sound for 12 young women in grades 6-8. This was part of EYH 2013 http://www.expandingyourhorizons.org/, a day of career exploration activities in science, engineering, and mathematics for young women in middle school. The goal of this "career activity" is to entice girls to become physicists by showing them how much fun hands-on physics is, and letting them talk directly with real-life women physicists. I led a group of 8 women in physics, including 5 female graduate students, 1 staff scientist, and 2 faculty, doing 3 hands-on experiments with EYH girls. First we introduced ourselves, making sure the girls knew that we are complete people, practicing sports and hobbies when we are not doing research. Then the girls started hands-on experiments on: additive color mixing, standing waves on a string, and seeing the effect of converging and diverging lenses in eyeglasses on a model of the human eye. At the end the girls said: "We had a blast!". UW-Madison, November 2nd, 2013,
- "The physics of color", part of the Wisconsin Institutes for Discovery public lecture "SoundWaves: Color in Sight and Sound". Public Lecture" http://discovery.wisc.edu/home/town-center/programs--events/soundwaves/. WID, DeLuca Forum, November 15th, 2013.
- "Biominerals" A 90-minute talk during dinner to Women In Science and Engineering (WISE) at UW-Madison, The audience are approximately 50 freshling women students at the Gordon Commons dorm, Madison, WI, November 19th, 2013.

- *"The physics and physiology of color vision",* Nerd Nite, part of the Wisconsin Science Festival, 30-minute presentation with demos on the physics of color to ~500 people from the general public. WID, DeLuca Forum, October 24th, 2015.
- TED Talk "Color: physics and perception", October 29, 2017: https://www.youtube.com/watch?v=p6TcOYk9uS8.
- Expanding Your Horizons: hands-on experiments on the physics of light and sound for 12+12 young women in grades 6-8. This was part of EYH 2017 http://www.expandingyourhorizons.org/, a day of career exploration activities in science, engineering, and mathematics for young women in middle school. The goal of this "career activity" is to entice girls to become scientists by showing them how much fun hands-on science is, and letting them talk directly with real-life women physicists. I led a group of 7 women in physics, including 2 female undergraduate students, 3 female graduate students, 1 staff scientist, and 1 faculty, doing 5 hands-on experiments with EYH girls. The girls did hands-on experiments on: additive color mixing, lenses and magnification, measuring the distance of the Chemistry building based on its image on a screen, the effect of converging and diverging lenses in eyeglasses on a model of the human eye, refraction in glass. UW-Madison, November 4th, 2017.
- *Big Picture Science* aredio interview, included in the episode *True Grit* that went out to radio stations and podcast sites in January 2019: http://www.bigpicturescience.org/episodes/true-grit.
- American Physical Society Q&A Profile, June 2019: https://physics.aps.org/articles/v12/73

Funding History (major grants in red, current in bold)

- Principal investigator of the Fonds National Suisse (FN) grant for "Spectromicroscopy Standards", $300,000, 1997-99.
- UW-SRC grant to organize the First International Spectromicroscopy Workshop at SRC on October 23-25, 1998. $20,000.
- Co-principal investigator of the aforementioned joint grants for the construction and commissioning of MEPHISTO for a total of **$600,000**, 1994-1995.
- Co-principal investigator of the continuation grants of the FN for spectromicroscopy, superconductors and low-dimensional systems at EPFL, $300,000/year, shared with two other colleagues of EPFL, 1995, 1996, 1997, 1998, 1999.
- Start-up package from UW-Graduate School and Physics Department, for equipment development and salaries, combined total $752,000, 1999-2005.
- UW Chancellor's Grant for Collaboration in Teaching, to develop the new course "Microscopy of Life" Spring 2002, in collaboration with Assistant Prof. Jamey Weichert (UW Radiology). The course is now listed in 7 departments at UW, as Physics 619, Anatomy 619, BioMedical Engineering 619, Chemistry 619, Medical Physics 619, Pharmacology 619, and Radiology 619, $27,000, Spring 2002.
- UW-Graduate School insurance grant, $30,000, 2001-2002.
- UW-Wisconsin Alumni Research Foundation, Technology Innovation Fund, University-Industry Relations, $38,231, 2002-2003.
- UW-Comprehensive Cancer Center, Pilot Project, Gadolinium Neutron Capture Therapy, $100,000, 2002-2004.
- UW-Synchrotron Radiation Center, Fund to support De Stasio's Summer salary and incoming users' research (PSL-SRC-68075) $35,000/year, 2002-2006.
- UW-Graduate School Romnes Award (UW-135-F054-A34-4867) $50,000, 2003-2008.

- NSF-SGER: The sensitivity of XANES spectroscopy to protein folding, submitted February 2005, (PHY-0523905) $50,000, awarded in 2005 for 2005-2006.
- US Air Force Office of Scientific Research (PI: Carpik). Uncovering the fundamental nature of tribological interfaces (FA9550-05-1-0204 at UW 144-NR20) $175,000 for De Stasio's group. Grant period: 2005-2008.
- UW-College of Letters and Science, Dean Gary Sandefur, one semester of research salary support to complete the "Physics in the Arts" text book, co-authored with Willy Haeberli. Entire salary (~$50,000) for Spring 2006.
- NSF-DMR UW-Synchrotron Radiation Center 3-year renewal, G. De Stasio as Interim Scientific Director wrote the proposal and organized and chaired the site visit, with only administrative help from Executive Director Joseph Bisognano obtained **$15,000,000** in Fall 2005, (PI Cadwallader, Dean of the Graduate School) grant number DMR-0537588, for grant period 2006-2009.
- UW-Graduate School, Vilas Associate Award 2006-2007. Given by the University of Wisconsin Graduate School, in competition with 1 or 2, tenured or untenured professors from each department at UW. (at UW 133HZ42, then 133JU38) (4 mo. summer salaries for 2006 and 2007, + $25,000).
- NSF-CHE: Molecular scale interactions at the peptide-mineral interface. PI: Pupa Gilbert. $375,000 CHE-0613972 at UW A-48-6700-144-PR16). Grant period: 2006-2009.
- NSF-SGER: The sensitivity of XANES spectroscopy to protein folding, misfolding and aggregation. PI: Pupa Gilbert. $50,000 (PHY-0646018 at UW A-48-6700-144-PU25). Grant period: 2006-2007.
- DOE-Geosciences: Mapping of temporal and spatial phase transitions of $CaCO_3$ in echinoderm skeletons: key insights into basic mechanisms in biomineralization. PI: Pupa Gilbert, Co-PI: Steve Weiner. DE-FG02-07ER15899 $484,417. Grant period: 2007-2010.
- Sabbatical Spring 2008, spent at the Advanced Lights Source, Lawrence Berkeley National Lab and at the Weizmann Institute of Science in Israel.
- NSF-CMS: Collaborative Research: Multi-Scale Experiments and Modeling of Nanocrystalline Diamond Coatings for Dry Machining. PI at U.Penn: Robert Carpick. $150,000. PI at UW-Madison: Frank Pfefferkorn. $150,001. (CMMI-0700794); Grant Period: 2007-2010. I declined any funds from this grant.
- Hamel Faculty Fellow Award. $50,000. Award period 2008-2012. (at UW PRJ11GC)
- American Competitiveness and Innovation (ACI) fellowship, nominated by the NSF program officer David Brant, and awarded by the NSF-Division of Materials Research. Award period 2008-2011 ($370,000, including Creativity Extension of the above grant CHE-0613972).
- Graduate School Fall Competition, $33,735 awarded as insurance for DOE renewal. Granted but not used.
- DOE-Geosciences: Phase transitions and crystal orientations in marine invertebrate skeletons: key insights into biomineral formation mechanisms and function. PI: Pupa Gilbert, Co-PIs: Lia Addadi and Steve Weiner. $709,417. Grant period: 2010-2013. (DE-FG02-07ER15899 at UW 144-QJ29).
- NSF-BMAT: Structure of mollusk shells at different length-scales. Grant period: Aug, 1, 2011-July 31, 2014, $450,000 (DMR-1105167 at UW PRJ48UV).
- US-Israel Binational Science Foundation: Intracrystalline peptides: mechanisms of incorporation and interaction with vaterite mineral. PIs Pupa Gilbert and Boaz Pokroy of Technion, Haifa, Israel. $188,000 ($94,000 to each PI). Grant period Sep. 1, 2011 – Aug. 31, 2016 (BSF-2010065 at UW PRJ52MK).
- NSF-MRI 2011, Grant for the acquisition of a cryo-tomo-transmission electron microscope at UW-Madison. Co-PIs: Marisa S. Otegui, Paul G. Alquist, Pupa Gilbert, Jeffrey D. Hardin, William J. Hickey. Grant period Sep. 1, 2011- Aug. 31, 2016, $1,146,576.00 (DBI-1126441 at UW PRJ52GS).

- DOE-Geosciences: Early stages of sea urchin biomineralization. PI: Pupa Gilbert, Co-PIs: Lia Addadi and Steve Weiner. $880,000. Grant period: 9/1/2013-8/31/2017. (DE-FG02-07ER15899 at UW 144-QJ29).
- Wisconsin Alumni Research Foundation: Crystal lattice tilting in mollusk shells. PI: Pupa Gilbert $39,359. Grant period: 7/1/2016-6/30/2017. (UW grant PRJ83NK).
- NSF-BMAT: Discovery of new phenomena in biomineral formation. PI: Pupa Gilbert, Grant period Sep 15, 2016 – Aug 31, 2019, $450,000. (DMR-1603192, UW grant AAB5542).
- DOE-BES-CSGB-Geosciences, Coral Biomineralization. PI: Pupa Gilbert, Grant period January 1, 2018 – December 31, 2020, $850,000. (DE-FG02-07ER15899, UW grant 144-QJ29).
- Ptychography and PEEM of Diatoms. Laboratory Directed Research and Development (LDRD), Lawrence Berkeley National Laboratory, Grant period October 1, 2019 – September 30, 2021, $500,000.
- Vilas Distinguished Achievement Professorship grant, UW-Madison, Grant period July 1, 2018 - June 30, 2023, $75,000. (UW grant AAG1974)
- Radcliffe Grant to organize and host the Workshop on "Biomineralization: integrating mechanism and evolutionary history", Radcliffe Institute for Advanced Study, Harvard University, Cambridge, MA, July 11-12, 2019. PI: Gilbert, Co-PI: Knoll. Grant period January-August 2019, $20,000.
- DOE-BES-CSGB-Geosciences, "Coral Biomineralization". PI: Pupa Gilbert, Grant period September 15, 2021 – June 30, 2025, $750,000+$68,000. (DE-FG02-07ER15899, UW grant 144-486700-QJ29).
- NSF-DMR-BMAT: "Discovery of new crystallization pathways in forming biominerals". PI: Pupa Gilbert, Grant period Jul 1, 2022 – Jun 30, 2025, $500,000. (NSF-DMR-BMAT-2220274, UW grant 144-486700-AAK7878).
- **DOE-BES-CSGB-Geosciences: "Chemistry of $CaCO_3$ phase transitions". PI: Pupa Gilbert, Co-PI: Daniel A. Stolper. May 1, 2022 – Apr 30, 2027, $2,500,000 at LBNL. (FWP number FP00011135, at LBNL PID number 108462-001). $500,000/year to Gilbert for years 1-5.**
- **UW-Madison WARF Named Professorship award, Jul 1, 2024-June 30-2029, $100,000. (Award ID MSN282395, UW grant 135-486700-AAN5384).**

Pending:

AFOSR-Natural Materials and Systems: Nanoscale misorientations in natural biominerals. PI: Pupa Gilbert, Grant period 20262029, $1,005,260. Pending.

NSF-BMAT: The kinetics of growing coral skeletons. PI: Pupa Gilbert, Grant period Jun 1, 2026 – May 31, 2029, $450,000. Pending.

DOE-BES-CSGB-Geosciences: "Chemistry of $CaCO_3$ phase transitions". PI: Pupa Gilbert, Co-PI: Daniel A. Stolper. FWP number FP00011135, at LBNL PID number 108462-001. $500,000/year to Gilbert for years 1-3. 2027-2030. To be submitted end of 2026.

Patents at Wisconsin Alumni Research Foundation (WARF)

1. De Stasio et al., Method of using gadolinium neutron capture to treat cancers. United States Patent No. US 6,770,020 B2, August 3, 2004. Expires June 4, 2022.
2. De Stasio et al. Method to Treat Neoplasms Via Gadolinium Stereotactic Synchrotron Radiation. US Patent 20070225268 (2007).

Major Committee Service since moving to the US in 1999

* Member of the National Science Foundation IGERT-2000 Panel, reviewing 7 proposals for M$ 2.7 each, November 1999.
* Member of the Biophotonics Search Committee
* for hiring 1 professor at UW-Madison, 1999-2000.
* Member of the UW-Graduate School Research Committee, to review "insurance" proposals, and to give Campus-wide Awards (Mid Carreer, Romnes and Named Professorships, Fall 2000-2001-2002.
* Member of the Search Committee for the Executive Director of the UW-Synchrotron Radiation Center, Spring 2001.
* Member of the Search Committee for a Beamline Scientist, dedicated to Spectromicroscopy at the UW-Synchrotron Radiation Center, Spring 2002.
* Member of the Searle Scholarship panel, UW Graduate School, Fall 2002.
* Member of the National Science Foundation panel for the first annual site visit of the Center for Biophotonics Science and Technology ($20M for 2002-2007), University of California-Davis, June 1-3, 2003.

- UW Graduate school committee to evaluate the Cluster Hiring Initiative at UW, after 5 years of operation and 81 faculty hires, Spring and Fall 2003.

  Chair of the Search Committee for one staff scientist at the UW-Synchrotron Radiation Center, Fall 2003.

- Member of the **Scientific Advisory Committee**, the Canadian Light Source, University of Saskatchewan at Saskatoon, 2004-2006, renewed 2006-2009. **Longest serving member of the SAC.**

- Member of the Search Committee for the Scientific Director of the UW-Synchrotron Radiation Center, Fall 2004-Spring 2006.

- Chair of the Search Committee for one staff scientist at the UW-Synchrotron Radiation Center, Fall 2005.

- Member of the Department of Energy panel and site visit for the renewal of the GeoSoilEnviroCARS at the Advaced Photon Source ($3.7M for 2006-2011, +$11M from NSF), May 16-17, 2006.

- Member of the National Science Foundation panel for the fourth annual site visit of the Center for Biophotonics Science and Technology ($18M for 2002-2007), University of California-Davis, May 31-June 1, 2006.

- Member of the National Science Foundation DMR-Biomaterials review panel 6, Minerals and Composites, NSF Alrington, VA, March 2-3, 2009.

- Member of the National Science Foundation, Division of Chemistry, Science and Art (SCIART) review panel 2010. NSF Alrington, VA, June 16-18, 2010.

- Fellowship Committee, American Physical Society (APS), Division of Biological Physics (DBIO), Summer 2010.

- Search Committee for 1 faculty position in Experimental Neutrino Physics, UW-Physics Department, Spring 2011.

- Member of the National Science Foundation, Division of Chemistry, Cultural Heritage Science (CHS) review panel 2011. NSF Alrington, VA, June 20-21, 2011.

- **APS-March Meeting 2012 Program Chair for DBIO (450 abstracts, 11 invited sessions, 41 focus sessions, 9 contributed sessions, 1 poster session), Feb. 27th-Mar 2nd, 2012, Boston, MA.**

- Search Committee for 3 faculty positions in Physics, UW-Physics Department, Spring 2014.

- UW-Madison, Department of Materials Science, Materials Graduate Governance Committee, 2015-2016.

- Organizing committee and steering committee to help NSF-DMR decide how to best invest $35,000,000 in 5 years in a single Biomaterials grant. Biomaterials Tools and Foundry Workshop, National Science Foundation, Arlinton, VA, Aug. 2-3, 2016. A report book was prepared, for which I played a major role.

- External reviewer for site visit of the department of Materials Science and Engineering, Johns Hopkins University, Baltimore, MD, November 2-4, 2016.

- Review Committee for the department of Zoology, UW-Madison, November 11, 2016.

- **Member of the Advanced Light Source - Scientific Advisory Committee, ALS-SAC, Berkeley, CA, April 2018-2021.**

- Member of the National Science Foundation panel for the fourth-year site visit of the MRSEC at New York University ($17M for 2014-2020), New York University, June 14-15, 2018.

- Member of the review committee for 10-year reiew of the UW-Madison Atmospheric and Oceanic Science Undergaduate and Graduate Programs, August-November 2024.

- Member of the National Science Foundation DMR-Biomaterials review panel 2, Biomineralization, on Zoom, January 30-31, 2025.

Other Committee Service

* January 98-2002: Member of the User Advisory Committee, University of Wisconsin Synchrotron Radiation Center.
- Ph.D. Defense Committee for Luca Perfetti, University of Rome II, July1998.
* Academic year1999-2000 UW Physics Department Salary Committee.
* Academic year1999-2000 UW Physics Department Award Committee.
- Ph.D. Defense Committee for Benjamin Gilbert, Ecole Polytechnique Fédérale de Lausanne, July 14, 2000.
* Academic year2000-2001 UW Graduate School Research Committee, Physical Sciences.
* Academic year2000-2001 UW Physics Department Graduate Program.
- Prelim Committee for Anthony Gerig, UW-Medical Physics, Aug. 10, 2001.
- Ph.D. Defense Committee for Yadong Li, UW-Medical Physics, Oct. 10, 2001.

- Interim Scientific Directorship Advisory Committee, UW Synchrotron Radiation Center, 2001-2002.

* Academic years 2001-2005 UW Physics Department, Faculty and Staff Recognition.

- Ph.D. Defense Committee for Angie Laird, UW-Physics, Dec. 16, 2002.
- Ph.D. Defense Committee for Anthony L. Gerig, UW-Medical Physics, Apr. 13, 2004.

* Academic year 2004-2005 UW Physics Department, New Staff Committee.
* Prelim Committee for Melissa Skala, UW-BioMedical Engineering, October 19, 2004.
* Ph.D. Defense and Prelim Committee for Marcel P. Goldschen, UW-Medical Physics, 2005, 2006, 2007, 2008, July 2009.
* Ph.D. Defense and Prelim Committee for David Grierson, UW-Mechanical Engineering, April 2008.
* Ph.D. Defense and Prelim Committee for Xiaosong Liu, UW-Physics, December 2008.
* Salary Committee 2006-2007, 2007-2008, 2010-2011, 2010-2013 (chair).
* Admissions & Fellowships Committee 2006-2007.
* Climate and Diversity Committee 2008-2009.
* Ph.D. Thesis Committee for Steve Morin, UW-Chemistry, February 2011.
* Ph.D. Thesis Committee for Alex Stuart, UW-Physics, May 2011.
* Ph.D. Thesis Committee for Dong Zhou, UW-Physics, May 2011.
* Colloquium Committee (Chair) 2006-2011, 2011-13 (member).
* Faculty & Staff Recognition Committee 2006-2010 (Chaired in 08/09).
* Selection Committee for Wisconsin Institute for Discovery, Frontier Fellows 2013.
* New Staff Committee (Chair), 2013-2014
* Nominating Committee, 2013-2014
* Ph.D. Thesis Committee for Steven Hart, UW-Physics, July 2013.
* Ph.D. Thesis Committee for Vikram Adhikarla, UW-Physics, February 2014.
* Physics Promotions and Mentoring Committee, 2015-16.
* UW Honorary Degree Committee, 2014-16.
* Ph.D. Thesis Committee for Audry Forticaux, UW-Chemistry, February 2015.
* Ph.D. Thesis Committee for Todd Garon, UW-Physics, May 2016.
* Chair of the Physics Colloquium Committee, Fall 2015 – Spring 2018.
* Ph.D. Defense Committee for Tao Peng, UW-Physics, May 2017.
* Ph.D. Defense Committee for James Osborne, UW-Physics, May 2017.
* Ph.D. Defense Committee for Elena Macia Sanchez, U Granada, Spain, September 2017.
* Ph.D. Defense Committee for Nathan Woods, UW-Physics, October 2017.
* Ph.D. Defense Committee for Leonardo Rivera, UW-Medical Physics, August 2016, December 2017.
* Ph.D. Defense and Prelim Committee for Nicholas Levitt, UW-Geoscience, 2016-2018 (Ph.D. September 2018).

* Ph.D. Defense Committee for Lena Vincent, UW-Astrobiology, 2018-2022.
* **Member of the Physics Colloquium Committee, Fall 2018-2020.**
* **Member of the Physics Council, Fall 2018-2021. Fall 2023-2026.**

Manuscript Reviewing for Journals

Science, Science Advances (AAAS)

Nature, Nat Mater, Commun Mater, Nat Phys, Nat Commun (NPG)

Procs Natl Acad Sci (NAS)

J Am Chem Soc, *Crystal Growth and Design*, *Biomacromolecules, Langmuir, ACS Nano* (ACS)

Amer Mineral (MSA) (**Associate Editor** for Biomineralization, 2007-2011)

Geochimica et Cosmochimica Acta, J Struct Biol, Acta Biomaterialia (Elsevier)

Phys Rev Lett, Phys Rev B, Phys Rev E (APS)

Biophys J (BS)

J Mater Res (MRS)

Nanoscale, Interface (RSC)

Adv Mater, Adv Funct Mater, *Angewandte Chemie International Edition*, *JNN, Cancer Res, Cancer Lett, Chem & Biol*, *JVST*.

Organization of Conferences

1. Member of the Organizing Committee of the Third International Conference on the Formation of Semiconductor Interfaces (ICFSI 3), CNR, Rome, Italy, May 6-10, 1991.
2. Chair, International Workshop on Spectromicroscopy, University of Wisconsin Synchrotron Radiation Center, October 23-25, 1998.
3. Chair, University of Wisconsin Synchrotron Radiation Center, Users' Meeting, October 27, 2000.
4. Member of the Organizing Committee of the Workshop on Frontiers in Soft-x-ray, VUV and Infrared Research, Pyle Center, Madison, WI, September 16-19, 2004.
5. Symposium organizer, Spectromicroscopy, American Physical Society March Meetting, Los Angeles, CA, March 21-25, 2005.
6. Chair, DBIO Tutorial Course "New Directions in Biological Physics", APS-March Meeting, Dallas, TX, March 20th, 2011.
7. Chair, APS-March Meeting 2012, Division of Biological Physics (DBIO), including 11 invited, 41 focus, 9 contributed, and 1 poster session. Feb. 27th-Mar 2nd, 2012, Boston, MA.
8. Chair, Tutorial Workshop "New Directions in Biological Physics", APS-March Meeting, Baltimore, MD, March 17th, 2013.
9. Co-Chair for DBIO, APS-March Meeting 2013, including 10 invited, 39 focus, 4 contributed, and 1 poster session. APS-March Meeting, Baltimore, MD, Mar 18th-22nd, 2013.
10. Chair, Focus Session on "Physics of Biomineralization" APS-March Meeting, Baltimore, MD, Mar 18th-22nd, 2013.

11. Organizer, with Susan N. Coppersmith, of the Invited Session "Physical Organizing Principles of Biomineral Formation", APS-March Meeting, Baltimore, MD, Mar 18th-22nd, 2013.
12. Member of the Scientific Advisory Board, 11th International Conference on the Chemistry and Biology of Mineralized Tissues (ICCMBT), Lake Geneva, WI, USA, October 27th-November 1st, 2013.
13. Co-organizer, with Anthony Giuffre, of the session "v028: Mineralization Processes in Biological and Inorganic Environments" at the 2013 Americal Geophysical Union (AGU) Fall Metting, San Francisco, CA, December 11th, 2013.
14. Co-organizer, with R. Lee Penn, Patricia M. Dove and James J. De Yoreo, of the DOE Worskshop on "Particle-Mediated Crystal Growth", San Francisco, CA, Dec. 12-14, 2013.
15. Co-organizer, with B. Pokroy, of 3 sessions on "Biomineral crystals: formation mechanisms, crystal structure and related materials properties" at Goldschmidt 2014, Sacramento, CA, June 8-13, 2014.
16. Co-organizer, with Boaz Pokroy and Yael Politi, of 3 sessions on "Formation and structure of biominerals" at Goldschmidt 2016, Yokohama, Japan, June 26-July 1, 2016.
17. Co-organizer, with Lisa Everett and Susan N. Coppersmith of the American Physical Society Conference for undergraduare Women and in Physicics (CUWiP), University of Wisconsin - Madison, January 14-16, 2017.
18. Member of the International Scientific Committee of the 14th International Symposium on Biomineralization (BIOMIN 14), Tsukuba, Japan, October 9-13, 2017.
19. Sole organizer of 1 invited and 3 focus sessions on "Biomaterials 1, 2, 3, 4: Structure, Function, Design" at the American Physical Society March Meeting, Los Angeles, CA, March 5-9, 2018.
20. Sole organizer of 4 sessions titled "6g: Energy landscapes in biomineralization and geochemistry, a celebration of Alexandra Navrotsky's 75th birthday" at Goldschmidt 2018, Boston, MA, August 12-17, 2018.
21. Sole organizer of 1 invited and 3 focus sessions on "Biomaterials I, II, III, IV: Structure, Function, Design" at the American Physical Society March Meeting, Boston, MA, March 4-8, 2019.
22. Co-organizer, with Andrew H. Knoll, of the Radcliffe Workshop "Biomineralization: integrating mechanism and evolutionary history", Radcliffe Institute for Advanced Study, Harvard University, Cambridge, MA, July 11-12, 2019.
23. Sole organizer of 4 focus sessions on "Biomaterials I, II, III, IV: Structure, Function, Design" at the American Physical Society March Meeting, Denver, CO, March 2-6, 2020. Cancelled.
24. Co-organizer, with Xin Zhang, and Qian Chen, Pre-Goldschmidt 2020 Workshop on "Non-classical crystallization", Hawaii, June 20-21, 2020.
25. Chair and co-organizer of the "Willy Haeberli Memorial Symposium", with Baha Balantekin, Tom Clegg, Frank Rathmann, and Steve Vigdor, Madison, WI, June 19-20, 2022.
26. Co-organizer, with Cristina Castillo Alvarez, Kevin Rosso, and Giovanni De Giudici of sessions titled "13h - Biomineralization and the environment: observations, correlations, and proxies to reveal past, present, and future adaptations" at Goldschmidt 2024, Chicago, IL, August 18-23, 2024.
27. Co-organizer, with Cristina Castillo Alvarez, and Giovanni De Giudici of sessions titled "Biomineralization and the environment: observations, correlations, and proxies to reveal past,

present, and future adaptations" at the 3rd International Association of GeoChemistry (IAGC) International Conference, Cagliari, Italy, June 16-21, 2025.

28. Co-organizer, with Sylvie Tambutté, of the Radcliffe Workshop "Can we help corals reefs survive their current decline?", Radcliffe Institute for Advanced Study, Harvard University, Cambridge, MA, Apr 15-16, 2027.

Organization of NSF site visits at SRC

- Site visit of the new NSF representative responsible for the SRC grant, Dr. Hugh Van Horn, one day of presentations, October 18, 2002.
- Interim site visit to decide continuation of awarded funding, March 29-31, 2004, in which the site visit committee defined us "a national treasure".
- **Site visit to decide on 3-year renewal, $15,000,000, grant period 2006-2009, September 12-14, 2005. Awarded.**

Advised Graduate Students and Post Docs (current advisees in green)

1. Sandra Pochon, EPFL Diploma in Physics, 1995-96.
2. Gian Francesco Lorusso, Post Doc at EPFL, 1995-97, Currently at KLA, San Jose, CA.
3. Jose Redondo, EPFL Diploma in Physics, 1995-97. Currently European director of Sun Power, Switzerland.
4. Olivier Fauchoux, graduate student in Physics, EPFL, 1998, Currently in France.
5. Luca Perfetti, Laurea in Physics, University of Rome II, Tor Vergata, 1998-99, then at EPFL (with Marco Grioni, not me), then Post-Doc at the Frei University of Berlin, Germany. Currently professor at the Ecole Polytechnique, Paris, France.
6. Benjamin Gilbert, Ph.D in Physics, EPFL July 2000. Then Post-Doc at UW-Physics, then at UC-Berkeley. Currently staff scientist at Lawrence Berkeley National Lab.
7. Bradley H. Frazer, Ph.D. in Physics, UW and EPFL, January 9, 2004. Staff Scientist at UW-SRC 2004-2006, currently at Gatan, Ca.
8. Deepika Rajesh, Post Doc in Human Oncology at UW, April 2002-2005.
9. Brandon Sonderegger, graduate student in Biophysics at UW, April-September 2002.
10. Matthew Daniels, graduate student in Physics, UW, June 2003-June 2004.
11. Robert Erhardt, graduate student in Biophysics, UW, June-December 2003.
12. Christopher Johnson (co-advised with Judd Aiken), Molecular Biology, UW, 2003-2007. Ph. D. in 2007.
13. Mike Abrecht, Post Doc in Physics at UW, then at SRC, then Staff Scientist at SRC, February 2005-September 2008. Currently in Switzerland.
14. Ronke M. Olabisi, Post Doc inPhysics at UW, June 2005-October 2006.
15. Andrew Konicek (co-advised with Robert W. Carpick), graduate student in Physics, UW, August 2005-2007 (transferred to U-Penn with Carpick).
16. David Grierson (co-advised with Robert W. Carpick), graduate student in Mechanical Engineering, UW, August 2005-2008. Ph.D. April 2008.

17. Dong Zhou (co-advised with Susan N. Coppermith), graduate student in Physics, UW, Jan-Dec 2007.
18. Elizabeth Holden, research associate at UW-Physics, Sep.-Dec. 2008.
19. Rebecca A. Metzler, graduate student in Physics, UW, May 2005-2010. Now Faculty at Colgate University.
20. Tyler Churchill, graduate student in Physics, UW, Fall 2009.
21. Eric M. Downes, graduate student in Biophysics, UW, Spring 2010.
22. Christopher E. Killian, Post Doc in Physics at UW, based in Berkeley (Lab in Cell and Molecular Biology Department, on campus and UC-Berkeley), April 2008-2010, Staff Scientist 2010-2014.
23. Narayana P. Appathurai, Staff Scientist at the Synchrotron Radiation Center, Octorber 1, 2008-2011.
24. Yutao Gong, graduate student in Physics, UW, Summer 2009- Spring 2013.
25. Ian C. Olson, graduate student in Materials Science, UW, Summer 2010-Spring 2013.
26. Ross DeVol, graduate student in Physics, UW, Fall 2012-2015.
27. Claire Salling, graduate student in Physics, UW, Fall 2013-Spring 2014.
28. Chang-Yu Sun, graduate student in Materials Science Program, UW, Summer 2014-Fall 2023.
29. Anthony J. Giuffre, Post Doc in Physics at UW, based in Berkeley at the ALS, Summer 2015-2017.
30. Vanessa Schoeppler, Post Doc in Physics at UW, based in Berkeley at the Molecular Foundry, Spring 2019-2021.
31. Jiaqi Li, Post Doc in CSD at LBL, Fall 2020.
32. Benjamin I. Fordyce, Lab Manager, Fall 2019-Summer 2021.
33. Cayla A. Stifler, graduate student in Physics, UW, Fall 2016-Dec 2022.
34. Connor A. Schmidt, graduate student in Chemistry, UW, Fall 2019-Fall 2025.
35. Jorge Rivera-Colon, Bridge graduate student in Chemistry, UW, Fall 2020-Fall 2021.
36. Roberta J. Candela, graduate student in Biophysics, UW, Summer 2021.
37. Emily Luffey, graduate student in Biophysics, UW, Summer 2021-Summer 2022.
38. Emily E. Palmer, graduate student in Chemistry, UW, Summer 2022.
39. Sophia A. (Sophie) Vogelsang, graduate student in Chemistry, UW, Summer 2022.
40. Laurent S. Devriendt, post doc, Lawrence Berkeley National Laboratory, September 2022-September 2024.
41. Maria Cristina Castillo Alvarez Benker, post doc, Lawrence Berkeley National Laboratory, October 2022-June 2025.
42. **Barat Q. Achinuq, Project Scientist, Advanced Light Source, Lawrence Berkeley National Laboratory. Supported by me for 30% of his salary. August 2023-present.**
43. **Zoë Rechav, graduate student in Physics, UW-Madison, Fall 2023-present.**
44. **Aiden Gustafson, graduate student in Physics, UW-Madison, Summer 2025-present.**

Advised Undergraduate Students (current in green)

1. Astrid Valiquer, EPFL, Spring 1998.
2. Sebastian Schaub, Ecole Normal Superieure de Lyon, France, Summers 1999 and 2000.
3. Samuel Gross, UW-Madison, Spring 2000.
4. Jeffrey Spector, UW-Madison, Summer 2001.
5. Casey S. Barka, UW-Eau Claire, Summer 2001.
6. Andrew D. Gadtke, UW-Physics, Summer 2002.
7. Katherine L. Richter, U. South Carolina, NSF-REU, Summer 2002, and winter break 2002.
8. Gordon R. Stephenson, UW-Chemistry, Spring 2003.
9. Maria V. Bravo, UW-French and Molecular Biology, NSF-REU, Summer 2004.
10. Valerie Hoefert, UW-Animal Science, Spring 2004, Fall 2004.
11. Angela R. Blissett, UW-Physics major. Fall 2004, Spring 2005, Fall 2005.
12. Molly J. Andreason, U. of Saint Thomas, MN, NSF-REU, Summer 2005.
13. Andrew J. Ballard, UW-Physics major. Fall 2005.
14. Jesse Pacheco, UW-Physics major. Fall 2006, Spring 2007.
15. Derek L. Woolley, UW-Physics major. Fall 2006, Spring 2007, Fall 2007.
16. Clinton Kyle Miller, UW-Biology major. Summer&Fall 2009.
17. Ian Christopher Olson, UW-Physics major. Summer 2008-2010.
18. Vasily Trubetskoy, MacAlester College. Summer 2009-2010.
19. Audra L. Amasino, UW-Physics major. Summer 2010-Spring 2011.
20. Adam Z. Blonsky, UW-Physics major. Spring 2012-2015.
21. Erin Monahan, UW-Biology major. Spring 2013-Summer 2014.
22. Benjamin Baranczyk, UW-Chemistry major. Spring 2014-Summer 2015.
23. Jessica Zhao, Applied Math concentrator, Harvard University, Fall 2014-Spring 2015.
24. Elizabeth Karan, Biology concentrator, Harvard University, Fall 2014-Spring 2015.
25. Ian Scammell, UW-Chemistry major. Spring 2015-Summer 2015.
26. Kevinraj N. Sukumar, UW-Physics major. Summer and Fall 2015.
27. Erik Tamre, Earth Science and Physics concentrator, Harvard University, Spring 2015-Spring 2016.
28. Madeleine Zeller, UW-Chemistry major, Spring 2016.
29. Annie Whisson, UW-Materials Science major, Spring 2016-Summer 2017.
30. Matthew J. Frazier, UW-Physics major, Spring 2016-Spring 2018.
31. Yanlin Wu, UW-Physics major, Fall 2017-Spring 2018.
32. Diana Li, UW-Physics major, Summer 2018.
33. Jack Gage, UW-Physics major, Fall 2018.
34. Suzy Wu, UW-Chem E major, Fall 2018.
35. Drue Hood McFadden, UW-Physics major, Summer 2019-Spring 2020.
36. Jack Henry Brau, UW-Physics major, Summer 2019-Fall 2020.

37. Benjamin I. Fordyce, UW-Physics major, Fall 2019-Summer 2020.
38. Jamie North, Carleton University-Chemistry major, Fall 2019-Summer 2020.
39. Bledat Gjinolli, Biology Major, UW-Madison, summer 2020-Spring 2021.
40. Asiya Ahmed, Mercile J. Lee scholar at UW-Madison, a Cnidarian Fall 2020-Summer 2021.
41. Celeo Matute Diaz, Mercile J. Lee scholar at UW-Madison, a Cnidarian Fall 2020-Spring 2021.
42. Sydney Davison, Mercile J. Lee scholar at UW-Madison, a Cnidarian Fall 2020-Fall 2021.
43. Catherine Nguyen, Mercile J. Lee scholar at UW-Madison, a Cnidarian Spring 2021-Fall 2021.
44. Max Xiong, Mercile J. Lee scholar at UW-Madison, a Cnidarian Fall 2020-Fall 2021.
45. Gabriela Barreiro Pujol, Mercile J. Lee scholar at UW-Madison, a Cnidarian Fall 2020-Summer 2022.
46. Isabelle M. LeCloux, Chemical Engineering major, Mercile J. Lee scholar at UW-Madison, a Cnidarian Fall 2020-Spring 2024.
47. Evan Walch, Mechanical Engineering major, Mercile J. Lee scholar at UW-Madison, a Cnidarian Fall 2020-Summer 2024.
48. Jaden Sengkhamee, Physics major, Mercile J. Lee scholar at UW-Madison, a Cnidarian Fall 2020-Summer 2025.
49. Virginia Quach, Biochemistry major, Mercile J. Lee scholar at UW-Madison, a Cnidarian Fall 2020-Spring 2024.
50. Connor Klaus, Biology and Chemistry major, UW-Madison, a Cnidarian Spring 2020-May 2024.
51. Catherine P. Breit, Biology and Zoology major, UW-Madison, a Cnidarian Summer 2021-Spring 2024.
52. Isaac Kohler, Physics and Mathematics major, UW-Madison, a Cnidarian Summer 2021-Summer 2023.
53. Oliver Parmekar, Conservation Biology and Environmental Studies major, UW-Madison, a Cnidarian Spring 2022-Spring 2023.
54. Annie Purisch, Physics major, UW-Madison, a Cnidarian Spring 2022-Summer 2024.
55. Maddie Patton, Biology major, UW-Madison, a Cnidarian Spring 2022-Fall 2023.
56. Shloka Mohanty, Physics and Chemistry major, UW-Madison, a Cnidarian January 2022-October 2022.
57. Tia Sika, Biochemistry major, UW-Madison, Spring 2022.
58. Connor Foust, Physics, Astrophysics, and Mathematics major, UW-Madison, a Cnidarian Spring 2022- Spring 2024.
59. Heidi Lulloff, Undergrad Research Scholar, UW-Madison, a Cnidarian Fall 2022- Summer 2023.
60. Andrii Hopanchuk, Physics major, UW-Madison, a Cnidarian Fall 2022- Spring 2024.
61. Jaiden Mezera, Undergrad Research Scholar, UW-Madison, a Cnidarian Fall 2022- Summer 2024.
62. Shreya Vattem, Undergrad Research Scholar, UW-Madison, a Cnidarian Fall 2022- Fall 2024.
63. **Samantha Anglemyer, Undergrad Research Scholar, UW-Madison, a Cnidarian Fall 2022-present.**
64. Tarak Sristy, Undergrad Research Scholar, UW-Madison, a Cnidarian Fall 2022.

65. Adrian Carmosino, Physics major, UW-Madison, a Cnidarian Fall 2023.
66. Christopher Fan, Physics major, UW-Madison, a Cnidarian Fall 2023.
67. Madison R. Ludwig, physics major, UW-Madison, a Cnidarian Fall 2023-Spring 2025.
68. Emily A. Devine, Physics major, UW-Madison, a Cnidarian Fall 2023.
69. Pooja P. Ponneboina, Undergrad Research Scholar, UW-Madison, a Cnidarian Fall 2023.
70. Hannah Mukana, Undergrad Research Scholar, UW-Madison, a Cnidarian Fall 2023.
71. Mengtian Yang, UW-Madison undergrad, a Cnidarian Fall 2023-Spring 2024.
72. Serena Xiong, UW-Madison undergrad, Mercile J. Lee scholar at UW-Madison, a Cnidarian Spring 2024.
73. **Lateef Saheed, UW-Madison undergrad, Mercile J. Lee scholar at UW-Madison, Spring 2024-present.**
74. Rhita Rich, UW-Madison undergrad, Mercile J. Lee scholar at UW-Madison, Spring 2024-Spring 2025.
75. Katie Krause, UW-Madison undergrad, Mercile J. Lee scholar at UW-Madison, Spring 2024-Spring 2025.
76. Jonah G. Yang, UW-Madison undergrad, Mercile J. Lee scholar at UW-Madison, Spring 2024-Summer 2024.
77. Meng Mua, UW-Madison undergrad, Mercile J. Lee scholar at UW-Madison, Spring 2024-Summer 2024.
78. Anders M. Larson, UW-Madison undergrad, Spring 2024-Summer 2025.
79. **Christian Waltenberg, Harvard University undergraduate, EPS major, Summer 2024-present.**
80. Jianfeng "Jeff" Ye, UW-Madison undergrad, Fall 2024-Summer 2025.
81. Julia Sujecki, UW-Madison undergrad, Fall 2024.
82. **Johannes Domagk, UW-Madison visiting student, expected graduation Spring 2028. Has been a Cnidarian Fall 2024-present.**
83. **James "Luke" Schwenk, St. Mary's College of Maryland undergraduate, Spring 2025-present.**
84. **Sylvia W. Lewis, UW-Madison undergrad, Spring 2025-present.**
85. Brynne E. Dixson-Kruijf, Bryn Mawr College undergrad, Spring 2025-Summer 2025.
86. Natalie E. Beltz, UW-Madison undergrad, Spring 2025-Fall 2025.
87. **Nicolas A. Chou, UW-Madison undergrad, Spring 2025-present.**
88. **Richard K. Kariuki, UW-Madison undergrad, Spring 2026-present.**
89. **Austin Norton, UW-Madison undergrad, Spring 2026-present.**
90. **Gabriela de la Cruz, UW-Madison undergrad, Spring 2026-present.**

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