

## Julie COSMIDIS, Ph.D.

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### *Professional Appointments*

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- 2020-Present      **Associate Professor**, Department of Earth Sciences, University of Oxford  
Governing Body Fellow, Wolfson College, University of Oxford
- 2017-2020      **Assistant Professor**, Department of Geosciences, Pennsylvania State University  
Associate, Earth and Environmental Systems Institute, Pennsylvania State University
- 2014-2016      **Research Associate**, Geomicrobiology Laboratory, Department of Geological Sciences, University of Colorado, Boulder

### *Education*

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- 2010-2013      **Ph.D. in Geochemistry, Institut de Minéralogie, de Physique des Matériaux et de Cosmochimie (IMPMC) and Institut de Physique du Globe de Paris (IPGP)**  
Title: “Bacterial biomineralization of modern and fossil calcium- and iron-phosphates”
- 2009-2010      **Master degree in Earth Sciences, Institut de Physique du Globe de Paris (IPGP) and Université Paris Diderot (Paris 7)**  
Specialization: Geochemistry
- 2008-2009      **Agrégation in Life and Earth Sciences**  
National competition for the French higher public education system recruitment
- 2006-2008      **Bachelor degree in Earth Sciences, Ecole Normale Supérieure (ENS) de Lyon**  
Specialization: Geochemistry and Geophysics

### *Professional Training*

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- May-July 2008      **Graduate Research Assistant, IPGP, Paris**
- Jan-March 2008      **Undergraduate Research Assistant, ENS, Lyon**
- June-July 2007      **Summer Intern, Lunar and Planetary Institute, Houston, Texas**

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## *Awards*

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- 2018            **Young Investigator Excellence Award** from the Canadian Light Source
- 2014            **Prix Haüy-Lacroix** for the best doctoral thesis in Mineralogy, Geochemistry and Material Sciences received from the French Society of Mineralogy and Crystallography (SFMC) and the French Geological Society (SGF)

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## *Grants and Other Funding Awards*

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- 2024            **Oxford Earth Strategic Research Fund** “Equitable Access to sustainable Resources for a Thriving Habitat” (£3,600,000) (Co-I)
- 2023            **ERC Starting Grant** (€2,010,661) “BIOFACTS/Biomineral Factories: a platform for the discovery and engineering of biomineralization controls” (PI)
- NERC Pushing the frontiers of environmental research** (£993,472) “Accelerated carbon dioxide release from sedimentary rocks in a warming world” (Co-I) – *Starting September 2024*
- 2022            **UKRI/BBSRC Developing engineering biology breakthrough ideas** (£117,170), “Engineering biomineralized carbon-sulfur composites for clean energy technologies” (PI)
- NERC Cross-disciplinary Research Capability for Discovery Science** (£27,495), “Iron Oxford Network for Measuring iron in the Environment” (Co-I)
- NERC Cross-disciplinary Research Capability for Discovery Science** (£7,341) “Strategic Metals Recovery from Waters” (Co-I)
- 2021            **John Fell OUP research fund, University of Oxford** (£51,693), “Microbial sulfur-carbon biocomposites for clean energy storage technologies” (PI)
- 2019            **Blue Sky Initiative, Department of Geosciences, Penn State University** (40,000\$), “Phosphate recycling from human waste using biomineralizing bacteria: A proof-of-concept study” (PI)
- 2018            **The Penn State University Energy and Environmental Sustainability Laboratories Green Bucks Program** (\$1,500), “Time series ion analysis of a meromictic lake to investigate biologically-induced calcium-carbonate whiting production” (PI)
- 2017            **The Penn State University Energy and Environmental Sustainability Laboratories Green Program** (\$1,400), “Evaluation of S<sup>0</sup> as a biosignature through investigation of bio- and organomineralized S<sup>0</sup> in laboratory and field experiments” (PI)
- 2015            **Colorado Advanced Industries Accelerator Program** (\$80,000), “Multidimensional sulfur-carbon networks for optimized cathodes in next-generation Li-S batteries” (Co-PI with Prof. Alexis Templeton).
- 2012            **Institut National des Sciences de l’Univers, French National Center for Scientific Research** (€13,860), “Calcium-phosphate biomineralization by microbial phosphatase enzymes: study of modern and ancient samples” (Proposal co-written with Elodie Duprat and Karim Benzerara, PIs)

2011 **Student travel grant, French Society of Mineralogy and Crystallography** (to the International School on Minerals and Biosphere, Campiglia Marittima, Italy)

## ***Teaching***

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2020-present University of Oxford, Department of Earth Sciences:  
 Chemistry, Physics & Biology (1<sup>st</sup> year)  
 Analytical Methods (3<sup>rd</sup> year)  
 Co-evolution of Life and Earth (4<sup>th</sup> year)  
 Lectures in “Diagenetic Processes” (2<sup>nd</sup> year)  
 Lectures in “The Earth System” (Doctoral Training Partnership in Environmental Research)  
 Field course leader for the 3<sup>rd</sup> year field course in Cornwall, UK (2021, 2022): teaching mineral resources, environmental impact of mining, aqueous geochemistry

2017-2020 Pennsylvania State University:  
 GEOSC 497: Analytical Methods in Mineralogy  
 GEOSC 502: Evolution of the Biosphere  
 GEOSC 597: Special Topics – Biominerals  
 GEOSC 202: Chemical Processes in Geology

2010-2013 Teaching Assistant at Université Paris Diderot (Paris 7): Geobiology labs (Graduate level), Aqueous Geochemistry labs (Undergraduate level)

## ***Academic mentoring***

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### ***Graduate Students***

2021-Present Shuo Wang, DPhil student  
 Sharmin Rikta, DPhil student

2018-Present Claire Webster, PhD student, Penn State University

2018-2022 Julia Lafond, MS student, Penn State University

2017-2019 Chloe Stanton, MS student, Penn State University

### ***Post-doctoral Mentoring***

2017-2018 Dr. Brandi Cron Kamermans, Distinguished Postdoctoral Fellowship (co-advised with Prof. Jennifer Macalady)

### ***Undergraduate Mentoring and Theses***

2023-2024 Helen Underwood, 4<sup>th</sup> year project and thesis

2022-2023 Sanaa Mughal, 4<sup>th</sup> year project and thesis  
 Kyros Austheim, 4<sup>th</sup> year project and thesis

2021-2022 Solomon Hirsch, 4<sup>th</sup> year project and thesis  
 Holly Liu, Master, 4<sup>th</sup> year project and thesis  
 Isabelle Aldridge, 4<sup>th</sup> year project and thesis

2019-2020 John Fulgitini, Senior’s thesis

2018-2019 Johanna Jacobson, Senior’s thesis  
 Aiden Price, Senior’s thesis

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2017-2018	Thomas Margetanski, Senior's thesis
July-August 2017	Rumya Ravi (Carleton College), co-advised with Dr. Cron Kamermans and Prof. Jennifer Macalady
2010-2012	Supervised four undergraduate students for research projects in Geomicrobiology

***PhD or Master thesis committee member***

- John Gardiner, Penn State Huck Life Sciences Institute. Advisor: Timothy Meredith.
- Rebecca Payne, Penn State Geosciences. Advisor: Prof. James Kasting.
- Andrew Hyde, Penn State Geosciences. Advisor: Prof. Christopher House.
- Alan Reyes, Penn State Astronomy and Astrophysics. Advisor: Prof. Jason Wright.
- Allison Fox, Penn State Geosciences. Advisor: Prof. Katherine Freeman.
- Gregory Wong, Penn State Geosciences. Advisor: Prof. Christopher House.
- Jared Carte, Penn State Department of Geosciences. Advisor: Prof. Matthew Fantle.
- Si Chen, Penn State Department of Geosciences. Advisor: Prof. Peter Heaney.

***PhD thesis defense jury member***

Kirsty Harrington, University of Oxford, department of Earth Sciences, "Carbon dioxide removal from natural and potential enhanced silicate weathering in the UK", Internal examiner, February 2024.

Chloe Truong, Museum National d'Histoire Naturelle (Paris, France), "A la recherche des biosignatures d'archées hyperthermophiles", Rapportrice (external examiner), November 2023.

Raphael Pietzsch, University of Oxford, department of Earth Sciences, "From atoms to landscapes through time: The chemical controls on carbonate precipitation and phosphate concentration in alkaline lakes", Internal examiner, September 2022.

Charlotte Dejean, Institut de physique du globe de Paris, « Contrôles biologiques, structurels et chimiques de la minéralisation du manganèse », July 2022.

Thibault Duteil, Université Bordeaux Montaigne, "Composition, properties and preservation of Exopolymeric Substances in estuarine sediments: implications for biogeochemical cycles and early diagenesis", External examiner, July 2022.

Roxana Shafiee, University of Oxford, department of Earth Sciences, "The role of trace metal micronutrients in the growth and niche separation of marine ammonia-oxidising microorganisms", Internal examiner, July 2021.

Sascha Roest-Ellis, University of Oxford, department of Earth Sciences, "Experimental and analytical investigations of non-skeletal carbonate production", Internal examiner, July 2021.

Rebecca Payne, Penn State University, department of Geosciences, "CO<sub>2</sub>, O<sub>2</sub>, and the history of the greenhouse effect: select problems in the evolution of the earth's atmosphere and climate", PhD defense jury member, October 2020.

Gregory Wong, Penn State University, department of Geosciences, "Enhanced evaluation of Martian habitability in the past and present: the search for viable electron donors", October 2020.

Allison Fox, Penn State University, department of Geosciences, “Post-depositional alteration of organic material: implications for interpreting molecular biosignatures”, PhD defense jury member, June 2020.

Joti Rouillard, “Tracing microfossils in Archean rocks”, Institut de Physique du Globe de Paris, École doctorale STEP’UP–ED N°560. Examiner, December 2018.

## *Service*

### *University Service*

2022-present	<b>Member of the Managing Committee</b> , Oxford Doctoral Training Partnership in Environmental Research
2021-present	<b>Member of the Nursery Sub-Committee</b> , Wolfson College, University of Oxford
2020-present	<b>Governing Body Fellow</b> , Wolfson College, University of Oxford <b>Fellowships and Membership Committee</b> , Wolfson College, University of Oxford <b>Member of the Departmental Seminar Organization team</b> , Oxford Earth Sciences
2022-2023	<b>Member of the Green Impact team</b> , Oxford Earth Sciences
2021-2022	<b>Member of the Outreach Committee</b> , Oxford Earth Sciences <b>Member of the Teaching Committee</b> , Oxford Earth Sciences <b>Deputy Director of Graduate studies</b> , Oxford Earth Sciences
2019	<b>Member of the Strategic Planning committee</b> , College of Earth and Mineral Sciences, Penn State University
2019-2020	<b>Ombudsperson for the graduate students</b> , Penn State Department of Geosciences
2018-2020	<b>Member of the Undergraduate Program Committee</b> , Penn State Department of Geosciences

### *Editorial service*

- **Principal Editor**, *Geo-Bio Interfaces*
- **Editorial Board Member**, *Geobiology*
- **Review Editor on the Editorial Board of Microbiological Chemistry and Geomicrobiology** (specialty section of *Frontiers in Chemistry*, *Frontiers in Earth Science*, *Frontiers in Environmental Science* and *Frontiers in Microbiology*)
- **Guest editor, Special issue on “Microbial biomineralization”** in MDPI *Geosciences*
- **Peer reviewer for:** *Nature Communications*, *Geobiology*, *ISME Journal*, *Frontiers in Microbiology*, *Geochemical Perspectives Letters*, *Precambrian Research*, *Geology*, *Geochimica et Cosmochimica Acta*, *Nature Scientific Reports*, *Minerals*, etc.

### *Conference organization*

2023	<b>Session convenor, Goldschmidt Conference, Lyon, France</b> “Microbial sulfur metabolisms, the geochemical sulfur cycle, and sulfur-bearing mineral formation processes”
2021	<b>Session convenor, Goldschmidt Conference (Virtual)</b> “Microbial processes in authigenic mineral formation and transformation”
2020	<b>Theme coordinator, Goldschmidt Conference (Virtual)</b> “New Approaches in Geochemistry: Nanoscale to Big Data”

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- 2017                    **Session convener, Goldschmidt Conference, Paris, France**  
 “Microbial biomineralization: mechanisms, impacts and applications”
- 2015                    **Session convener, Goldschmidt Conference, Prague, Czech Republic**  
 “Phosphorus biogeochemistry in past and present environments”

***Proposal reviews***

- Member of the Natural Sciences and Engineering Research Council of Canada (NSERC) Evaluation Group for Geosciences (2022)
- Reviewer for the NASA Mars Participating Scientist program, the UK Space Agency, the UKRI Sciences and Technology Facilities Council, and the Stanford synchrotron (SSRL) competitive time-allocation process
- Reviewer and panel member for the NASA postdoctoral program

***Public Outreach***

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**Scientific consultant for a children’s book:** “Earth Clock”, Welbeck Children’s (2021)

**Public talks:**

- French Astrobiological society (Société Française d'Exobiologie)  
<https://www.youtube.com/watch?v=b39xZMkPYyU>

**Media engagement:** Interviews and articles published by the general and science-based media

- Interview for Radio Canada (in French)  
<https://ici.radio-canada.ca/ohdio/premiere/emissions/les-annees-lumiere/segments/entrevue/487063/archive-cerveaux-fossiles-humain-prehistoire>
- ACS Central Science and Chemical and Engineering News: “A conversation with Julie Cosmidis”  
<https://pubs.acs.org/doi/10.1021/acscentsci.2c00980>
- Geological Society of America press release: “Experiments show the record of early life could be full of “false positives””  
<https://www.geosociety.org/GSA/News/pr/2021/21-06.aspx>
- Article in Science News: “Fossil mimics may be more common in ancient rocks than actual fossils”  
<https://www.sciencenews.org/article/fake-fossil-biomorphs-more-common-ancient-rocks-real-fossils>

**Fête de la Science, Paris, France (annual event):** Organization of scientific experiments and demonstrations for school-aged children (2010-2013)

***Scientific society memberships***

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Member of the European Association of Geochemistry

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## ***Publications***

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\*: publications by students and postdoc mentees

### **Peer-reviewed journal articles**

30. Morton-Hayward A L, Anderson R P, Saupe E E, Larson G, **Cosmidis J**, Human brains preserve in diverse environments for at least 12 000 years, *Proceedings of the Royal Society B* (2024)
29. **Cosmidis J**, Will tomorrow's mineral materials be grown? *Microbial Biotechnology* (2023)
28. \*Stanton C, Barnes B, Kump Lee R., **Cosmidis J**, A re-examination of the mechanism of whitening events: A new role for diatoms in Fayetteville Green Lake (New York, USA), *Geobiology* (2023)
27. Lau G, Trivedi C, Grasby S, Spear J, **Cosmidis J**, Templeton A, Sulfur-and Iron-Rich Mineralogical Features Preserved in Permafrost in the Canadian High Arctic: Analogues for the Astrobiological Exploration of Mars, *Frontiers in Astronomy and Space Sciences* (2022)
26. **Cosmidis J**, Benzerara K, Why do microbes make minerals? *Compte Rendus Geosciences*, 354, 1-39 (2022)
25. McMahon S, **Cosmidis J**, False Biosignatures on Mars: Anticipating Ambiguity, *Journal of the Geological Society* (2021)
24. \*Cron B, Macalady J. L., **Cosmidis J**, Organic stabilization of extracellular elemental sulfur in a Sulfurovum-rich biofilm: a new role for EPS?, *Frontiers in Microbiology* (2021)
23. \*Nims C, Lafond J, Alleon J, Templeton A, **Cosmidis J**, Organic biomorphs may be better preserved than microorganisms in early Earth sediments. *Geology* (2021)
22. Bralower T, **Cosmidis J**, Fantle M.S., Lowery C.M. et al., The Habitat of the Nascent Chicxulub Crater, *AGU Advances*, 1, e2020AV000208 (2020)
21. Bralower T, **Cosmidis J**, Heaney PJ, Kump LR, et al., Origin of a global carbonate layer deposited in the aftermath of the Cretaceous-Paleogene boundary impact, *Earth and Planetary Science Letters*, 548, 116476 (2020)
20. \*Cron B, Henri P, Chan C, Macalady J, **Cosmidis J**, Elemental sulfur formation by *Sulfuricurvum kujiense* is mediated by extracellular organic compounds, *Frontiers in Microbiology*, 10, 2710 (2019)
19. Picard A, Gartman A, **Cosmidis J**, Obst M, Vidoudez C, Clarke DR, Girgis PR, Authigenic iron sulfide minerals preserve organic carbon in anoxic environments, *Chemical Geology*, 530, 119343 (2019)
18. \*Nims C, Cron B, Wetherington M, Macalady J, **Cosmidis J**, Low frequency Raman Spectroscopy for micron-scale and in vivo characterization of elemental sulfur in microbial samples, *Nature Scientific Reports*, 9, 7971 (2019)

17. **Cosmidis J**, Nims C, Diercks D, Templeton A, Formation and stabilization of elemental sulfur through organomineralization, *Geochimica et Cosmochimica Acta*, 247, 59–82 (2019)
16. Johnson J E, Muhling J R, **Cosmidis J**, Rasmussen B, Templeton A S, Low-Fe(III) Greenalite Was a Primary Mineral from Neoproterozoic Oceans, *Geophysical Research Letters* (2018)
15. Skouri-Panet F, Benzerara K, **Cosmidis J**, Férard C, Caumes G, De Luca G, Heuclin T, Duprat E, *In Vitro* and *in Silico* Evidence of Phosphatase Diversity in the Biomineralizing Bacterium *Ramlibacter tataouinensis*, *Frontiers in Microbiology*, 8, 2592 (2018)
14. Lau G, **Cosmidis J**, Grasby S, Trivedi C, Spear J, Templeton A, Low-temperature formation and stabilization of rare allotropes of cyclooctasulfur ( $\beta$ -S<sub>8</sub> and  $\gamma$ -S<sub>8</sub>) in the presence of organic carbon at a sulfur-rich glacial site in the Canadian High Arctic, *Geochimica et Cosmochimica Acta*, 200, 218–231 (2017)
13. **Cosmidis J**, Templeton A, Self-assembly of biomorphic carbon/sulfur microstructures in sulfidic environments, *Nature Communications*, 7, 12812 (2016)
12. Li J, Margaret-Oliver I, Cam N, Boudier T, Blondeau M, Leroy E, **Cosmidis J**, Skouri-Panet F, Guigner J-M, Ferard C, Poinot M, Moreira D, Lopez-Garcia P, Cassier-Chauvat C, Chauvat F, Benzerara K, Biomineralization patterns of intracellular carbonatogenesis in cyanobacteria: Molecular hypotheses, *Minerals*, 6:1, 10 (2016)
11. **Cosmidis J**, Benzerara K, Guyot F, Skouri-Panet F, Duprat E, Férard C, Guigner J-M, Babonneau F, Coehlo C, Calcium-phosphate biomineralization induced by alkaline phosphatase activity in *Escherichia coli*: localization, kinetics and potential signatures in the fossil record, *Frontiers in Earth Science*, 3, 84 (2015)
10. Jain R, Seder-Colomina M, Jordan N, Dessi P, **Cosmidis J**, van Hullebusch E, Weiss S, Farges F, Lens P, Entrapped elemental selenium nanoparticles affect physicochemical properties of selenium fed activated sludge, *Journal of hazardous materials*, 295, 193–200 (2015)
9. Zatoń M, Niedźwiedzki G, Marynowski L, Benzerara K, Pott C, **Cosmidis J**, Krzykawski T, Filipiak P, Coprolites of Late Triassic carnivorous vertebrates from Poland: An integrative approach, *Palaeogeography Palaeoclimatology Palaeoecology*, 430, 21–46 (2015)
8. **Cosmidis J**, Benzerara K, Nassif N, Tyliszczak T, Bourdelle F, Characterization of Ca-phosphate biological materials by Scanning Transmission X-ray Microscopy (STXM) at the Ca L<sub>2,3</sub>-, P L<sub>2,3</sub>- and C K-edges, *Acta Biomaterialia*, 12, 260–269 (2015)
7. Li J, Bernard S, Benzerara K, Beyssac O, Allard T, **Cosmidis J**, Moussou J, Impact of biomineralization on the preservation of microorganisms during fossilization: An experimental perspective, *Earth and Planetary Science Letters*, 400, 113–122 (2014)
6. Benzerara K, Skouri-Panet F, Li J, Ferard C, Gugger M, Laurent T, Couradeau E, Ragon M, **Cosmidis J**, Menguy N, Margaret-Oliver I, Tavera R, Lopez-Garcia P, Moreira D, Intracellular Ca-carbonate biomineralization is widespread in cyanobacteria, *Proceedings of the National Academy of Sciences*, 111, 10933–10938 (2014).



5. **Cosmidis J**, Benzerara K, Morin G, Busigny V, Jézéquel D, et al., Biomineralization of iron phosphates in the anoxic water column of Lake Pavin (Massif Central, France), *Geochemica et Cosmochemica Acta*, 126:78–96 (2014).
4. **Cosmidis J**, Benzerara K, Menguy N, Arning E, Microscopy evidence of bacterial microfossils in phosphorite crusts of the Peruvian shelf: implications for phosphogenesis mechanisms, *Chemical Geology*, 359, 10–22 (2013)
3. Baumgartner J, Morin G, Menguy N, Perez Gonzalez T, Widdrat M, **Cosmidis J**, Faivre D, Magnetotactic bacteria form magnetite from a phosphate-rich ferric hydroxide via nanometric ferric (hydr)oxide intermediates, *Proceedings of the National Academy of Sciences*, 110, 14883–14888 (2013)
2. Bourdelle F, Benzerara K, Beyssac O, **Cosmidis J**, Neuville D R, Brown G E Jr., Paineau E, Quantification of the ferric/ferrous iron ratio in silicates by scanning transmission X-ray microscopy at the Fe L<sub>2,3</sub> edges, *Contributions to Mineralogy and Petrology*, 166, 423–434 (2013)
1. **Cosmidis J**, Benzerara K, Gheerbrant E, Estève I, Bouya B and Amaghaz M, Nanometer scale characterization of exceptionally preserved bacterial fossils in Paleocene phosphorites from Ouled Abdoun (Morocco), *Geobiology*, 11:2, 139–153 (2013)

### **Book Chapters**

2. Busigny V, Jézéquel D, **Cosmidis J**, Viollier E, Benzerara K, Planavsky N, Albéric P, Lebeau O, Sarazin G and Michard G, The Iron Wheel in Lac Pavin: Interaction with Phosphorus Cycle. In: *Lake Pavin: History, biogeochemistry, and sedimentology of a deep meromictic maar lake*, T Sime-Ngando, P Boivin, E Chapron, D Jezequel, and M Meybeck (eds.), Springer International Publishing, pp. 205–220 (2016)
1. **Cosmidis J**, Benzerara K, Soft X-ray Scanning Transmission Micro-Spectroscopy, In: *Biomineralization Sourcebook: Characterization of Biominerals and Biomimetic Materials*, Laurie Gower and Elaine DiMasi (eds.), Taylor and Francis, London, pp. 115–133 (2014)

### **Preprints (non-peer reviewed articles)**

**Cosmidis J**, O'Reilly S, Ellison E. T., Crispin K., Diercks D. Templeton A., Carbonate polymorphism controlled by microbial iron redox dynamics at a natural CO<sub>2</sub> leakage site (Crystal Geysir, Utah), *EarthArXiv* (2021)

\*Cron B, Macalady J. L., **Cosmidis J**, Organic stabilization of extracellular elemental sulfur in a Sulfurovum-rich biofilm: a new role for EPS?. *BioRxiv* (2021)

\*Stanton C, **Cosmidis J**, Kump L. R., A re-examination of the mechanism of whitening events: A new role for diatoms in Fayetteville Green Lake (New York, USA), *EarthArXiv* (2021)

### **Patents**

Cosmidis J and Templeton A, “Sulfur-Carbon Tubes and/or Spheres, and Methods of Making Same”, US Patent No. 10790500 (2020)

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## *Selected Talks*

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- Invited:** ENS Lyon Department of Earth Sciences Seminar, Lyon, France, June 2024.
- Invited:** Goldschmidt Conference, Lyon, July 2023 (virtual).
- Invited:** COST Action “Chemobionics” Workshop on “Self-organization Reactions on Early Earth, Athens, February 2023 (virtual).
- Invited:** Royal Astronomical Society Specialist Discussion Meeting, London, January 2023.
- Invited:** Cosmidis J, Geomicrobiology seminar, Department of Geosciences, Eberhard-Karls-University Tuebingen, Tuebingen, November 2022.
- Invited:** Anglo-American Biotech Open Forum, Oxford, October 2022.
- Keynote:** GeoMinKöln, Annual Conference of the the Deutsche Mineralogische Gesellschaft (German Mineralogical Society), Köln, September 2022 (virtual).
- Keynote:** Cosmidis J, COST Action Chemobionics Meeting (virtual), September 2021.
- Invited:** Geomicrobiological and Geochemical Colloquium seminar series, GFZ German research Center for Geosciences (virtual), September 2021.
- Goldschmidt Conference (virtual), July 2021.
- Invited:** Mineral-Life seminar series, IMPMC Paris (virtual), November 2020.
- Invited:** ACS National Meeting, Philadelphia, PA, March 2020.
- Invited:** Geobiology Gordon Research Conference, Galveston, TX, January 2020.
- Invited:** Geological Society of America Annual Meeting, Phoenix, AZ, September 2019.
- Invited:** Geobiology Society Conference, Banff, Canada, June 2019.
- Invited:** Goldschmidt Conference, Boston, MA, August 2018.
- Invited:** Earth-Life Science Institute (ELSI), Tokyo, Japan, May 2018.
- Keynote:** Goldschmidt Conference, Paris, France, August 2017.
- Invited:** Goldschmidt Conference, Paris, France, August 2017.
- Goldschmidt Conference, Prague, Czech Republic, August 2015.
- Goldschmidt Conference, Florence, Italy, August 2013.
- Soleil User Meeting, Soleil Synchrotron, Saint Aubin, France, January 2013.
- Goldschmidt Conference, Montreal, Canada, June 2012.