

ARCHANA ANAND

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EDUCATION

PhD, Ecology & Biodiversity	University of Hong Kong	08/2019
M.Sc, Environmental Management	University of Hong Kong	08/2014
MBA, Sustainability	S.P.Jain School of Global Management	12/2009
B.Eng (Honors), Engineering	National University of Singapore	06/2007

APPOINTMENTS & POSITIONS

Assistant Professor	San Francisco State University	01/2023-present
Postdoctoral Research Fellow	Columbia University	10/2021-11/2022
Postdoctoral Research Fellow	Stanford University	11/2020-07/2021
Postdoctoral Research Fellow	University of Hong Kong	09/2019-05/2020

RESEARCH & TRAINING GRANTS

RENEW by US Department of Energy (PI: \$2,175,000)	2025-2028
SF Bay Climate Resilience: Leveraging microbial indicators for oyster restoration (PI: \$20,000)	2024-2025
Building Capacity for Coastal Climate Resilience in San Francisco Bay (Co-I: \$18,500)	2024-2026
BRaVE Phage Foundry by Department of Energy (Co-I: \$375,000 US)	2023-2026
Anand Lab Seed Fund by College of Science & Engineering, SFSU (PI: \$180,000 US)	2023-2027
Centre for Cellular Construction, USA by NSF (Research Affiliate: \$27,000 US)	2023-2025
Real-time pathogen surveillance by Columbia University, USA (PI: \$85,000 US)	2021-2022
Explorer Led Education Workshop at National Geographic Learning's event in Vietnam (PI: \$2,000 US)	2019
National Geographic Explorer Dependent and Childcare Award (PI: \$2,101 US)	2019
National Geographic Explorer Award by the National Geographic Society (PI: \$5000 US)	2019
Pilot Scheme for International Experience for Research Postgraduates (PI: \$20,000 HKD)	2019
Environment Conservation Fund, Research Grants Council (Co-I: \$3,200,000 HKD)	2016
Graduate Student Fellowship from International Coral Reef Society (PI: \$2500 US)	2016
Campus Internationalization and Integration Funding Scheme from University of Hong Kong (PI: \$50,000 HKD)	2014

PROFESSIONAL ACTIVITIES AND IN-KIND SUPPORT

Community Science Program (CSP), Joint Genome Institute (JGI) for saturated soils (Co-PI; 8Tb)	2024-2026
Climate action fellowship, SFSU (graduate and undergraduate student support; \$20000)	2024-2025
Advisor, Bay Area RaMP in Microbiome Science, by National Science Foundation USA (\$10,000)	2024-2025
NIH-Bridges to PhD fellowship (graduate student support for 2 scholars; \$40,000)	2023-2026
CIRM Bridges Science Master's Program (undergraduate and graduate student support; \$20,000)	2023-2025
National Microbiome Data Collaborative (NMDC) Champion, DOE, USA	2024-present
Mentor, Water Environment Federation - In-FLOW STEMPATH program (\$15,000)	2023-present
CSU-WATER Campus Representative, San Francisco State University, USA	2023-present
Health Equity Institute Fellow, San Francisco State University, USA	2023-present
WISE Faculty Advisor, San Francisco State University, USA	2023-present
Editor, Frontiers in Environmental Science	2021-present

REPRESENTATIVE PUBLICATIONS

Peer-Reviewed Journals

1. Franco GC, Leiva J, Nand S, Lee DM, Hajkowski M, Dick K, Withers BN, Soto L, Mingoa BRN, Acholonu M, Hutchins A, Neely L, **Anand A**. 2024. Soil Microbial Communities and Wine Terroir: Research Gaps and Data Needs. *Foods*, 13(16), 2475; <https://doi.org/10.3390/foods13162475>
2. McIlroy SE, Guibert I, **Anand A**, Chung WYH, Duffy JE, Gotama R, Hui J, Knowlton N, Leray M, Meyer C, Panagiotou G, Paulay G, Russell B, Thompson PD, Baker DM. 2024. Life goes on: Spatial heterogeneity promotes biodiversity in an urbanized coastal marine ecosystem. *Global Change Biology*.(4):e17248. PMID: 38581126.
3. **Anand A**, Long C, Chandran K. 2024. NYC metropolitan wastewater reveals links between SARS-CoV-2 amino acid mutations and disease outcomes. *Science of the Total Environment*. 908:167971. PMID: 37914132.
4. Zambrana W, Catoe D, Coffman MM, Kim S, **Anand A**, Solis D, Sahoo MK, Pinsky BA, Bhatt AS, Boehm AB, Wolfe MK. 2022. SARS-CoV-2 RNA and N Antigen Quantification via Wastewater at the Campus Level, Building Cluster Level, and Individual-Building Level. *ACS Environment Science and Technology Water*. 2(11):2025-2033. PMID: 37552722.
5. **Anand A**, Francis CA, Boehm AB. 2021. The beach aquifer microbiome: Research gaps and data needs. *Frontiers in Environmental Science*. doi:10.3389/fenvs.2021.653568
6. Wolfe MK, **Anand A**, Catoe D, Coffman M, Dorevich S, Graham KE, Kim S, Grijalva LM, Roldan-Hernandez L, Silverman AI, Sinnott-Armstrong N, Vugia DJ, Yu AT, Zambrana W, Wigginton KR, and Boehm AB. 2021. Scaling of SARS-CoV-2 RNA in Settled Solids from Multiple Wastewater Treatment Plants to Compare Incidence Rates of Laboratory-Confirmed COVID-19 in Their Sewersheds. *Environment Science and Technology Letters*, 8, 5, 398-404.
7. **Anand A**, Baker DM. 2021. Multifunctionality of an urbanized coastal marine system. *Frontiers in Marine Science*. <https://doi.org/10.3389/fmars.2020.557145>.
8. N Geeraert, **Anand A**, MN Xu, SJ Kao, DM Baker, B Thibodeau. 2021. Investigating the link between Pearl River-induced eutrophication and hypoxia in Hong Kong shallow coastal waters. *Science of the Total Environment* 772, 145007.
9. T Kim, JCY Lee, DH Kang, NN Duprey, KS Leung, **Anand A**, DM Baker. 2021. Modification of fatty acid profile and biosynthetic pathway in symbiotic corals under eutrophication. *Science of The Total Environment* 771, 145336
10. Chen J, McIlroy SE, **Anand A**, Panagiotou G, Baker D. 2019. A pollution gradient contributes to the taxonomic, functional, and resistome diversity of microbial communities in marine sediments. *Microbiome*. 7(1):104 DOI: 10.1186/s40168-019-0714-6.
11. **Anand A**, Panagiotou G, Thibodeau B, Geeraert N, Xu MN, Kao SJ, Baker DM. 2018. Nitrogen sources and cycling revealed by dual isotopes of nitrate in a complex urbanized environment. *Water Research*. 142:459-470. DOI: 10.1016/j.watres.2018.06.004.
12. Kang K, Ni Y, Li J, Imamovic L, Sarkar C, Kobler MD, Heshiki Y, Zheng T, Kumari S, Wong JCY, **Anand A**, Wong CWM, Dingle C, Denizen S, Baker DM, Sommer MOA, Webster CJ, Panagiotou G. 2018. The Environmental Exposures and Inner- and Intercity Traffic Flows of the Metro System May Contribute to the Skin Microbiome and Resistome. *Cell Reports*. 24(5):1190-1202. DOI: 10.1016/j.celrep.2018.06.109.
13. **Anand A**, Li L, Kao SJ, Thibodeau B, Baker DM. 2016. Variations in nitrate isotope composition of wastewater effluents by treatment type in Hong Kong. *Marine Pollution Bulletin*. 111(1-2):143-152. DOI: 10.1016/j.marpolbul.2016.07.019.
14. **Anand A**, Baker DM. 2015. Variations in nitrate isotope composition of wastewater effluents by treatment type in Hong Kong. *Marine Pollution Bulletin*. 111(1-2):143-152. DOI: 10.1016/j.marpolbul.2016.07.019.

Pre-Prints

15. Cyphert EL, Nand S, Franco G, Hajkowski M, Soto L, Lee DM, Ferner M, Zabin C, Blumenthal J, Deck A, Boyer K, Burrus K, Hernandez CJ, **Anand A**. Combinatorial characterization of bacterial taxa-driven differences in the microbiome of oyster reefs. bioRxiv. 2024 May 16; PubMed Central PMCID: PMC11118425
16. **Anand A**, Arkin A, Mageeney C, Mukundan H, Mitalik V. Bridging the gap: Inclusive pathway programs for persistence in microbiology. Invited Commentary (in review at Trends in Microbiology).

Protocols

17. Rasile B, Maas K, Hajkowski M, **Anand A**. 2024. Microbe/Phage Wastewater DNA/RNA Concentration and Extraction (Nanotrap® and NucleoMag® RNA Water). [dx.doi.org/10.17504/protocols.io.dm6gpz8p5lzp/v1](https://doi.org/10.17504/protocols.io.dm6gpz8p5lzp/v1)
18. Mingoa B-R, **Anand A**. 2024. Microplastics extraction from oyster tissue. [dx.doi.org/10.17504/protocols.io.j8nlk81dxi5r/v1](https://doi.org/10.17504/protocols.io.j8nlk81dxi5r/v1)

TEACHING & MENTORING

Assistant Professor	San Francisco State University	01/2023-present
Mentoring: 8 undergraduates, 5 graduates (all URM, first-generation students)		
Teaching: ~100 students; General Microbiology Laboratory, Virology, Environmental Microbiology, Graduate Colloquium and Peer-Assisted Learning Scientists.		
Postdoctoral Research Fellow	Columbia University	11/2021-11/2022
	Stanford University	11/2020-06/2021
Mentoring: 3 PhD students and 1 master's student concerning SARS-CoV2 surveillance efforts		
Teaching: Designed and delivered CEE 173 – Urban Water to 25 graduate students		
PhD Candidate/Teaching Assistant	University of Hong Kong	08/2014-08/2019
Mentoring: Provided guidance to 5 undergraduates completing their final year projects		
Teaching: Biostatistics and Research Methods, Field & Lab Methods in Environmental Science, Evolutionary Diversity, Environmental Impact Assessment		
	Hong Kong International School	05/2016 – 08/2019
Mentoring: Served as an advisor for a high school project (4 students) on monitoring beach water quality and 30 secondary school students in autonomous reef monitoring structure (ARMS) retrievals and processing.		
	National Geographic Society	01/2019-present
Teaching: Science Storytelling Bootcamp for Asia Explorers and spotlight presenter		

PRESENTATIONS

Oct 2024 Invited speaker	SFSU & UC Berkeley Ocean Futures Collaboration
Sep 2024 Invited speaker	CSU Bioinformatics Series Fall 2024
Aug 2024	Invited speaker
National Microbiome Data Collaborative (NMDC) Meeting	
Aug 2024	Invited participant
Stable isotope probing & Viromics – mini symposium, LLNL	
Aug 2024	Invited speaker
Dr. Rebecca Morris & Group, University of Melbourne	
Jun 2024 Invited presenter	After Dark Exhibit by SF Exploratorium
May 2024	Invited speaker
Site Visit, Centre for Cellular Construction supported by NSF	
Apr 2024 Invited participant	Department of Energy ECR meeting, Washington DC
Mar 2024 Invited speaker	BRaVE Phage Foundry PI meeting at LBNL
Nov 2023 Invited speaker	Microbiomes in a Changing Planet by JBIMS @ UC Berkeley
Aug 2023 Invited Speaker	Annual retreat, Centre for Cellular Construction, NSF
Jul 2023 Invited Speaker	PINC Closer Look, SFSU
Apr 2023 Invited Speaker	CSU East Bay Spring 2023 Biology Research Seminar
Feb 2023 Invited Speaker	STEM-NET Virtual Café, Cal State LA
Feb 2023	Invited speaker
Health Equity Institute, San Francisco State University	
Oct 2022 Invited speaker	PI meeting, NIH RAPID - wastewater surveillance
Feb 2022 Invited speaker	Exploring by the seat of your pants
Apr 2020	Invited Speaker
Earth Day @ National Geographic Television	
Aug 2019 Invited workshop facilitator	National Geographic Learning & Apollo English Vietnam
Jun 2019 Invited spotlight presenter	Explorer's Festival at National Geographic Society
Apr 2019 Invited speaker	Gordon Research Conference-Marine Molecular Ecology
Mar 2019 Invited speaker	Postgraduate course on science communication at HKU
Mar 2019	Seminar

Annual Postgraduate Student Seminar
Nov 2018 Invited spotlight presenter
Sep 2018
MarineGEO Collaborators Meeting
Apr 2017 Invited speaker
SAR
Apr 2015 Invited speaker

Asia Explorers Festival, National Geographic Society
Seminar
Environmental Protection Department, Hong Kong
Xiamen University; Xiamen, China

SELECTED PRESS

- **Campus Memo** for undergraduate-led publication, 8/2024
<https://campusmemo.sfsu.edu/2024/august-19-2024>
- **After Dark Exhibit: Anand Lab at SF Exploratorium**, “Invisible Invaders” 4/2024
<https://wayback.archive-it.org/19866/20240505232644/https://www.exploratorium.edu/visit/calendar/after-dark-under-microscope>
- **Phage foundry: Campus memo** for funding award, 10/2023
<https://campusmemo.sfsu.edu/2023/October-23-2023>
- **Women in Science: Invited talk** at Exploring by the seat of your pants, 02/2022
- **Earth Day:** talk on National Geographic Television, 05/2020
- **Explorer Spotlight Talk** at the National Geographic Explorer Festival, 06/2019:
<https://www.youtube.com/watch?v=eeBA2rRw6y8>
- **Five Female Ocean Scientists to Follow Right Now** – [TogetherBand](https://togetherband.org/blogs/news/5-ocean-activists-to-meet), 2019:
<https://togetherband.org/blogs/news/5-ocean-activists-to-meet>
- **Interview for Summer Workshop in Partnership with National Geographic Learning** – [VTV3 in Vietnam](https://www.facebook.com/watch/?v=679470252488560), 2019: <https://www.facebook.com/watch/?v=679470252488560>
- **National Geographic Wild TV program** featuring Asia Explorers, 2019
- **National Geographic Explorer Award Recipient**, 2018:
<https://www.biosch.hku.hk/ionathan-cybulski-named-national-geographic-young-explorer-works-on-the-paleoecology-of-hong-kongs-coral-ecosystem-2/>
- **Newsletter featuring Women in Science**—[University of Hong Kong Faculty of Science](https://www.scifac.hku.hk/f/newsletter/33/Newsletter_Apr_2018.pdf), 2018:
https://www.scifac.hku.hk/f/newsletter/33/Newsletter_Apr_2018.pdf
- **Spotlight piece on “Urban Reefs”** – [Current Conservation](https://www.currentconservation.org/issues/hong-kongs-troubled-waters-harbour-coral-reefs-of-the-future/), 2018:
<https://www.currentconservation.org/issues/hong-kongs-troubled-waters-harbour-coral-reefs-of-the-future/>

CERTIFICATIONS

[Professional Association of Diving Instructors \(PADI\)](#)

PADI-Certified Rescue Diver	05/2017
PADI-Certified Advanced Open Water Diver	05/2017
PADI-Certified Open Water Diver	10/2014
Emergency First Responder – CPR, First Aid, Oxygen Administration	05/2017
