

## DR. NAGISSA MAHMOUDI

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### PROFESSIONAL EXPERIENCE

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| Since 2018  | <b>Assistant Professor</b> , Department of Earth & Planetary Sciences, McGill University  |
| 2014 - 2018 | <b>Postdoctoral Research Fellow</b> , Advisor: Ann Pearson<br>Department of Earth & Planetary Sciences, Harvard University                                |
| 2013 - 2014 | <b>Postdoctoral Research Associate</b> , Advisor: Terry C. Hazen<br>Department of Civil and Environmental Engineering, University of Tennessee, Knoxville |
| 2012        | <b>Visiting Scientist</b> , Advisor: Albert Juhasz<br>Centre for Environmental Risk Assessment & Remediation, University of South Australia               |

### EDUCATION

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| 2008 - 2013 | McMaster University, Hamilton, ON, Canada<br><b>Ph.D., Environmental Geochemistry</b><br>Dissertation Advisor: Greg F. Slater |
| 2003 - 2007 | University of Toronto, Toronto, ON, Canada<br><b>B.Sc., Integrative Biology</b>   |

### RESEARCH GRANTS (ALL VALUES ARE IN CAD UNLESS OTHERWISE NOTED)

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| 2020 - 2023 | U.S. National Science Foundation (NSF) Chemical Oceanography<br>PI: Suni Shah Walter (UDelaware); International Collaborator/Co-I: N Mahmoudi (McGill)<br>Total: \$538,390 USD |
| 2020 - 2022 | New Frontiers in Research Fund (NFRF) Exploration Grant<br>Lead-PI; Co-Is: Brett Walker (UOttawa), Joelle Pelletier (UMontreal)<br>Total: \$250,000                            |
| 2020 - 2022 | Fonds de recherche du Québec – Nature et technologies (FRQNT) New Researchers Grant<br>Lead/Sole PI. Total: \$90,000   |
| 2019 - 2024 | Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant<br>Lead/Sole PI. Total: \$137,500  |
| 2019 - 2021 | Canada Foundation for Innovation (CFI) - John R. Evans Leaders Fund<br>Lead/Sole PI. Total: \$600,000  |
| 2019 - 2020 | McGill Sustainability Systems Initiative<br>Lead PI, Co-I: Gail Chmura (McGill). Total: \$9800   |

### FELLOWSHIPS AND AWARDS

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| 2019        | Kavli Frontiers of Science Fellow, bestowed by U.S. National Academy of Sciences   |
| 2016 - 2018 | National Science Foundation (NSF) - Center for Dark Energy Biosphere Investigations (C-DEBI), Postdoctoral Fellowship, \$220,000 USD |

2014 - 2016	Natural Sciences and Engineering Research Council of Canada (NSERC) Postdoctoral Fellowship (PDF), \$90,000
2011 - 2013	Natural Sciences and Engineering Research Council of Canada (NSERC) Graduate Fellowship (CGS D), \$70,000
2012	Dr. Dennis Shaw Memorial Award, \$500
2011 - 2012	L'Oreal-UNESCO for Women in Science Fellowship, \$5000
2011 - 2012	Natural Sciences and Engineering Research Council of Canada (NSERC) Michael Smith Foreign Study Supplement, \$6000
2011	Ontario Graduate Scholarship, \$15,000
2011	Graduate Student Associate Travel Assistance Grant, \$500
2010	Ontario Graduate Scholarship, \$15,000
2008 - 2010	Natural Sciences and Engineering Research Council of Canada (NSERC) Graduate Scholarship (PSG M), \$34,600
2008	Ontario Graduate Scholarship, \$15,000
2007	NSERC Undergraduate Research Award, \$5700

## PUBLICATIONS (9/16 FIRST AUTHOR)

- (16) **Mahmoudi N**, SH Hagen, TC Hazen, AD Steen. Patterns in extracellular enzyme activity and microbial diversity in deep-sea Mediterranean sediments. (2020) *Deep Sea Research Part I*, 103231.
- (15) **Mahmoudi N**, TN Enke, SR Beupre, AP Teske, OX Cordero, A Pearson. (2020) Illuminating microbial species-specific effects on organic matter remineralization in marine sediments. *Environmental Microbiology*. 22(5):1734-1747.
- (14) LaRowe DE, S Arndt, JA Bradley, ER Estes, A Hoarfrost, SQ Lang, KG Lloyd, **N Mahmoudi**, WD Orsi, SR Shah Walter, AD Steen, R Zhao. The fate of organic carbon in marine sediments - new insights from recent data and analysis. (2020) *Earth-Science Reviews*, 103146.
- (13) Orcutt BN, J Bradley, WJ Brazelton, EJ Estes, JM Goordial, JA Huber, RM Jones, **N Mahmoudi**, JJ Marlow, S Murdock, M. Pachiadaki. (2019) Impacts of Deep-Sea Mining on Microbial Ecosystem Services. *Limnology & Oceanography*.
- (12) Miller JI, SM Techtmann, JL Fortney, **N Mahmoudi**, D Joyner, J Liu, S Olesen, E Alm, A Fernandez, P Gardinali, TC Hazen. (2018) Rapid Anoxic Oil Hydrocarbon Degradation by Caspian Sea Microbial Communities. *Frontiers in Microbiology*, 10, 995.
- (11) **Mahmoudi N**, SR Beupre, AD Steen, A Pearson. (2017) Sequential bioavailability of sedimentary organic matter to heterotrophic bacteria. *Environmental Microbiology*, 19(7): 2626-2644.
- (10) Techtmann SM, **N Mahmoudi**, KT Whitt, MF Campa, JL Fortney, DC Joyner, TC Hazen. (2017) Comparison of Thaumarchaeotal Populations from Four Deep Sea Basins. *FEMS Microbiology Ecology*, 93: 1-10.
- (9) Beupre SR, **N Mahmoudi** & A Pearson. (2016) IsoCaRB: A novel bioreactor system to characterize the lability and natural carbon isotopic (<sup>14</sup>C, <sup>13</sup>C) signatures of microbially-respired organic matter. *Limnology & Oceanography Methods*, 14:10: 668-681.
- (8) Hazen TC, RC Prince, **N Mahmoudi**. (2016) Marine Oil Biodegradation. *Environmental Science & Technology*, 50(5), 2121-2129.
- (7) **Mahmoudi N**, MS Robeson, HF Castro, JL Fortney, SM Techtmann, DC Joyner, CJ Paradis, SM Pfiffner, TC Hazen. (2015) Microbial community composition and diversity in Caspian Sea sediments. *FEMS Microbiology Ecology*, 91: 1-11.

- (6) Brewer S, SM Techtmann, **N Mahmoudi**, D Niang, S Pfiffner, TC Hazen. (2015). Co-extraction of DNA and PLFA from soil samples. *Journal of Microbiological Methods*, 115: 64-66.
- (5) **Mahmoudi N**, TM Porter, AR Zimmerman, RR Fulthorpe, GN Kasozi, BR Silliman, GF Slater. (2013) Rapid degradation of Deepwater Horizon spilled oil by indigenous microbial communities in Louisiana salt marsh sediments. *Environmental Science & Technology*, 47(23): 13303-13312.
- (4) **Mahmoudi N**, L Burns, S Mancini, RR Fulthorpe, GF Slater. (2013) Assessing microbial carbon sources and potential PAH degradation using natural abundance radiocarbon analysis. *Environmental Pollution*, 175: 125-130.
- (3) **Mahmoudi N**, GF Slater, AL Juhasz. (2013) Assessing limitations for PAH biodegradation in long-term contaminated soils using bioavailability assays. *Water, Air, & Soil Pollution*, 224(2): 1411.
- (2) **Mahmoudi N**, GF Slater, RR Fulthorpe. (2011) Comparison of commercial DNA extraction kits for isolation and purification of bacterial and eukaryotic DNA from PAH-contaminated soils. *Canadian Journal of Microbiology*, 57(8):623-8.
- (1) **Mahmoudi N**, M Modanu, Y Brandt, MCB Andrade. (2008) Subtle Pedipalp Dimorphism: A reliable method for Sexing Juvenile Spiders. *Journal of Arachnology*. 36: 513-517.

## INVITED SEMINARS

upcoming	Woods Hole Oceanographic Institution, Department of Marine Chemistry & Geochemistry, Woods Hole, MA (rescheduled for spring 2021, originally scheduled for June 2020)
	Columbia University, Lamont-Doherty Earth Observatory, Palisades, NY (rescheduled for spring 2021, originally scheduled for May 2020)
	University of Ottawa, Department of Earth and Environmental Sciences, Ottawa, ON (rescheduled for spring 2021, originally scheduled for April 2020)
2020	California Institute of Technology (Caltech), Department of Environmental Science & Engineering, Pasadena, CA
	University of Nevada, Las Vegas (UNLV), School of Life Sciences, Las Vegas, NV
2019	University of Toronto Mississauga (UTM), Department of Chemical & Physical Sciences, Mississauga, ON
	Rice University, Department of Earth, Environmental & Planetary Sciences, Houston, TX
	Cornell University, Department of Ecology & Evolutionary Biology, Ithaca, NY
	University of Toronto, Department of Earth Sciences, Toronto, ON
	National Research Council (NRC) of Canada, Montreal, QC
2018	Université du Québec à Montréal, Department of Biological Sciences, Montreal, QC
2017	McGill University, Department of Earth & Planetary Sciences, Montreal, QC
2016	University of Michigan, Department of Earth & Planetary Sciences, Ann Arbor, MI
	Woods Hole Oceanographic Institute (WHOI), National Ocean Sciences Accelerator Mass Spectrometry (NOSAMS) Facility, Woods Hole, MA
2014	Tulane University, Department of Global Environmental Science, New Orleans, LA
2013	University of Tennessee, Centre for Environmental Biotechnology, Knoxville, TN
	ExxonMobil Upstream Research Company, Houston, TX
2012	University of South Australia, Center for Environmental Risk Assessment & Remediation, Adelaide, SA

## SELECTED CONFERENCE PRESENTATIONS (\*INDICATES PRESENTER)

- 2019 **Mahmoudi N\***, Microbial cycling of organic matter in marine sediments. *Geobiology Society Conference*, Banff, Alberta, Canada. Invited Speaker.
- 2018 **Mahmoudi N\***, T Enke, SR Beaupre, A Teske, OX Cordero, A Pearson. Elucidating microbial species-specific effects on organic matter transformation in marine sediments, *International Center for Deep Life Investigation (ICDLI) Symposium*, Shanghai, China. Invited Speaker.
- Mahmoudi N\***, T Enke, SR Beaupre, A Teske, OX Cordero, A Pearson. Uncovering microbial species-specific effects on organic matter transformation through novel isotopic approaches. *Goldschmidt Geochemistry Conference*, Boston, Massachusetts. Speaker.
- 2017 **Mahmoudi N\***, What's on the menu? Investigating the selective diet of heterotrophs using novel isotopic tools. *Center for Dark Energy Biosphere Investigations (CDEBI) Annual Meeting*, Marina, California. Invited Speaker.
- Mahmoudi N\***, T Enke, SR Beaupre, A Teske, OX Cordero, A Pearson. Elucidating microbial species-specific effects on organic matter transformation in marine sediments. *American Geophysical Union (AGU) Fall Meeting*, New Orleans, Louisiana. Poster.
- 2016 **Mahmoudi N\***, SR Beaupre, AD Steen, A Pearson. IsoCaRB: A novel bioreactor system to characterize microbial carbon cycling and the lability of natural organic matter. *16th International Symposium on Microbial Ecology (ISME)*, Montreal, Canada. Poster.
- Mahmoudi N\***, SR Beaupre, AD Steen, A Pearson. Sequential bioavailability of sedimentary organic matter to heterotrophic bacteria. *Gordon Research Conference (GRC) Organic Geochemistry*, Holderness, New Hampshire. Poster.
- Mahmoudi N\***, SR Beaupre, AD Steen, A Pearson. Investigating microbial C cycling in sediments using the IsoCaRB system. *American Society for Microbiology (ASM) General Meeting*, Boston, Massachusetts. Poster.
- Mahmoudi N\***, SR Beaupre, A Pearson. Microbial cycling of recalcitrant organic matter in marine sediments using natural isotope respirometry in a novel, carbon-free bioreactor. *Ocean Sciences Meeting*, New Orleans, Louisiana. Poster.
- 2015 Hagen S, **N Mahmoudi**, AD Steen\*, TC Hazen. Quantifying Extracellular Enzyme Activity in Deep-Sea Sediment from the Central Mediterranean Sea Through the Use of Fluorometric Assays. *Southeastern Biogeochemistry Symposium*, Atlanta, Georgia. Poster.
- 2014 **Mahmoudi N\***, MS Robeson, SM Pfflner, SM Techtmann, JL Fortney, DC Joyner, TC Hazen. Sedimentary microbiomes in the Caspian Sea, *15th International Symposium on Microbial Ecology (ISME)*, Seoul, South Korea. Poster.
- Mahmoudi N\***, MS Robeson, SM Pfflner, SM Techtmann, JL Fortney, DC Joyner, TC Hazen. Diversity and function of microbial communities in the Caspian Sea, *American Society for Microbiology (ASM) General Meeting*, Boston, Massachusetts. Poster.
- 2012 **Mahmoudi N\***, RR Fulthorpe, AR Zimmerman, BR Silliman, GF Slater. Temporal trends in microbial abundance and biodegradation in Louisiana salt marshes following the Deepwater Horizon oil spill, *American Geophysical Union (AGU) Fall Meeting*, San Francisco, California. Speaker.
- Clay S\*, **N Mahmoudi**, AR Zimmerman, BR Silliman, GF Slater. Investigation of petroleum residues and microbial PLFA in Barataria Bay sediments one year after the Deepwater Horizon oil

spill. *American Geophysical Union (AGU) Fall Meeting*, San Francisco, California. Poster.

**Mahmoudi N\***, GF Slater, AL Juhasz. Assessing limitations for PAH biodegradation in long-term contaminated soils using bioavailability assays, *Goldschmidt Geochemistry Conference*, Montreal, Quebec. Speaker.

2011 **Mahmoudi N\***, L Burns, S Mancini, RR Fulthorpe, GF Slater. Assessing microbial carbon sources and cycling in soils using natural abundance radiocarbon analysis, *American Geophysical Union (AGU) Fall Meeting*, San Francisco, California. Speaker.

2010 **Mahmoudi N\***, JME Ahad, L Burns, S Mancini, RR Fulthorpe, GF Slater. Relationship between the extent of contamination and archaeal, eukaryotic and bacterial community complexity and diversity, *13th International Symposium on Microbial Ecology (ISME)*, Seattle, Washington. Speaker.

**Mahmoudi N\***, GF Slater, RR Fulthorpe. Comparison of commercial DNA extraction kits for isolation and purification of bacterial and eukaryotic DNA from PAH-contaminated soils, *Canadian Society for Microbiology (CSM)*, Hamilton, Ontario. Poster.

## ADVISING

Postdoctoral	Kathryn Rico (Sep 2019 – present) Awarded Wares Postdoctoral Fellowship, \$115,000 for 2019-2021
Graduate	Lindsey Potts (Sept 2019– present, MSc Candidate) Trottier Accelerator Fellowship, \$5000 for 2019-2020  Leah Mindorff (Sept 2019– present, MSc Candidate) Awarded David Stewart Memorial Fellowship, \$10,000 for 2019-2020 Awarded Research Affiliate Program (RAP) scholarship by Natural Resources Canada, \$17,500 per year, 2019-2021
Undergraduate	Emily Perry (Dec 2019 – present), Major: Earth Sciences Douglas Szeto (Jan 2020 – May 2020), Majors: Computer Science, Biology Emilie Lafleche (Jan 2020 – May 2020), Major: Planetary Sciences

## PROFESSIONAL ENGAGEMENT & SERVICE ACTIVITIES

Chair	Science Organizing Committee member for Lunar and Planetary Institute's The First Billion Years: Habitability conference, Big Sky Montana, September 2019.  Session entitled "Reconstructing the Co-evolution of Early Life and its Environment: From Molecules to Models, and Analogues to Isotopes" at Goldschmidt Geochemistry Conference, Aug 2018  Session entitled "Old Stuff Doing Good: Soils and Recalcitrant Organic Matter" at Gordon Research Conference (GRC) Organic Geochemistry meeting, July 2016
Workshops	Deep Sea Mining Impacts on Microbial Ecosystem Services, Bigelow Laboratory for Ocean Sciences, East Boothbay, Maine. Apr 18-19, 2018.  Microorganisms and Organic Carbon in the Marine Subsurface, Knoxville, Tennessee. March 12-13, 2018.  Deep Carbon Observatory (DCO) Early Career Summit, Mt. Etna, Italy. Aug 28-Sep 2, 2017.  Moore Foundation Early Career Ocean Summit, Kona, Hawaii. Jan 17-21 2017.  Thermal Analysis of Natural Organic Matter workshop, Woods Hole Oceanographic Institute

	(WHOI). Sep 14-15, 2016. <i>Invited Speaker</i> .
	Radiocarbon short course, Keck Carbon Accelerator Mass Spectrometer facility University of California, Irvine. July 11-15, 2011
	Argonne Soil Metagenomics Workshop & Meeting, Chicago, Illinois. Oct 3 -5, 2012
Peer Review	Invited as Panel Reviewer for Department of Energy (DOE) Biological and Environmental Research (BER), 2019
	Invited as Panel Reviewer for NASA Exobiology Program, 2016, 2017, 2018, 2019
	Reviewer for ISME Journal, Marine Chemistry, Proceedings of the Royal Society B, Environmental Science & Technology, Environmental Microbiology, BMC Microbiology, Geochimica et Cosmochimica Acta, Journal of Contaminant Hydrology, Environmental Pollution, Science of the Total Environment, Marine Pollution Bulletin
Editorship	Associate Editor, <i>Geobiology</i> Associate Editor, <i>Frontiers in Microbiology</i>
Professional organizations	Member, American Geophysical Union (AGU) Member, International Society for Microbial Ecology (ISME) Member, Geochemical Society (GS)