

Malak M Tfaily

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/3849547/publications.pdf>

Version: 2024-02-01

100
papers

4,829
citations

94381

37
h-index

114418

63
g-index

124
all docs

124
docs citations

124
times ranked

4719
citing authors

| # | ARTICLE | IF | CITATIONS |
|----|---|-----|-----------|
| 1 | Groundwater-surface water mixing shifts ecological assembly processes and stimulates organic carbon turnover. <i>Nature Communications</i> , 2016, 7, 11237. | 5.8 | 290 |
| 2 | Changes in peat chemistry associated with permafrost thaw increase greenhouse gas production. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 5819-5824. | 3.3 | 268 |
| 3 | Thermodynamically controlled preservation of organic carbon in floodplains. <i>Nature Geoscience</i> , 2017, 10, 415-419. | 5.4 | 234 |
| 4 | Organic matter transformation in the peat column at Marcell Experimental Forest: Humification and vertical stratification. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2014, 119, 661-675. | 1.3 | 170 |
| 5 | Advanced Solvent Based Methods for Molecular Characterization of Soil Organic Matter by High-Resolution Mass Spectrometry. <i>Analytical Chemistry</i> , 2015, 87, 5206-5215. | 3.2 | 167 |
| 6 | Stability of peatland carbon to rising temperatures. <i>Nature Communications</i> , 2016, 7, 13723. | 5.8 | 162 |
| 7 | Formularity: Software for Automated Formula Assignment of Natural and Other Organic Matter from Ultrahigh-Resolution Mass Spectra. <i>Analytical Chemistry</i> , 2017, 89, 12659-12665. | 3.2 | 156 |
| 8 | Microbial Community Structure and Activity Linked to Contrasting Biogeochemical Gradients in Bog and Fen Environments of the Glacial Lake Agassiz Peatland. <i>Applied and Environmental Microbiology</i> , 2012, 78, 7023-7031. | 1.4 | 149 |
| 9 | Community proteogenomics reveals the systemic impact of phosphorus availability on microbial functions in tropical soil. <i>Nature Ecology and Evolution</i> , 2018, 2, 499-509. | 3.4 | 116 |
| 10 | Microbial Community Stratification Linked to Utilization of Carbohydrates and Phosphorus Limitation in a Boreal Peatland at Marcell Experimental Forest, Minnesota, USA. <i>Applied and Environmental Microbiology</i> , 2014, 80, 3518-3530. | 1.4 | 114 |
| 11 | Sequential extraction protocol for organic matter from soils and sediments using high resolution mass spectrometry. <i>Analitica Chimica Acta</i> , 2017, 972, 54-61. | 2.6 | 110 |
| 12 | Influences of organic carbon speciation on hyporheic corridor biogeochemistry and microbial ecology. <i>Nature Communications</i> , 2018, 9, 585. | 5.8 | 110 |
| 13 | Differences in soluble organic carbon chemistry in pore waters sampled from different pore size domains. <i>Soil Biology and Biochemistry</i> , 2017, 107, 133-143. | 4.2 | 107 |
| 14 | Investigating dissolved organic matter decomposition in northern peatlands using complimentary analytical techniques. <i>Geochimica Et Cosmochimica Acta</i> , 2013, 112, 116-129. | 1.6 | 104 |
| 15 | Microbial Metabolic Potential for Carbon Degradation and Nutrient (Nitrogen and Phosphorus) Acquisition in an Ombrotrophic Peatland. <i>Applied and Environmental Microbiology</i> , 2014, 80, 3531-3540. | 1.4 | 102 |
| 16 | Redox Fluctuations Control the Coupled Cycling of Iron and Carbon in Tropical Forest Soils. <i>Environmental Science & Technology</i> , 2018, 52, 14129-14139. | 4.6 | 96 |
| 17 | Partitioning pathways of CO ₂ production in peatlands with stable carbon isotopes. <i>Biogeochemistry</i> , 2013, 114, 327-340. | 1.7 | 89 |
| 18 | Shifts in pore connectivity from precipitation versus groundwater rewetting increases soil carbon loss after drought. <i>Nature Communications</i> , 2017, 8, 1335. | 5.8 | 88 |

| # | ARTICLE | IF | CITATIONS |
|----|--|-----|-----------|
| 19 | Soil Organic Matter Characterization by Fourier Transform Ion Cyclotron Resonance Mass Spectrometry (FTICR MS): A Critical Review of Sample Preparation, Analysis, and Data Interpretation. <i>Environmental Science & Technology</i> , 2021, 55, 9637-9656. | 4.6 | 88 |
| 20 | Elemental composition and optical properties reveal changes in dissolved organic matter along a permafrost thaw chronosequence in a subarctic peatland. <i>Geochimica Et Cosmochimica Acta</i> , 2016, 187, 123-140. | 1.6 | 77 |
| 21 | Abundant carbon substrates drive extremely high sulfate reduction rates and methane fluxes in Prairie Pothole Wetlands. <i>Global Change Biology</i> , 2017, 23, 3107-3120. | 4.2 | 64 |
| 22 | Simple Plant and Microbial Exudates Destabilize Mineral-Associated Organic Matter via Multiple Pathways. <i>Environmental Science & Technology</i> , 2021, 55, 3389-3398. | 4.6 | 63 |
| 23 | Diurnal cycling of rhizosphere bacterial communities is associated with shifts in carbon metabolism. <i>Microbiome</i> , 2017, 5, 65. | 4.9 | 62 |
| 24 | Dispersal limitation and thermodynamic constraints govern spatial structure of permafrost microbial communities. <i>FEMS Microbiology Ecology</i> , 2018, 94, . | 1.3 | 62 |
| 25 | Multi 'omics comparison reveals metabolome biochemistry, not microbiome composition or gene expression, corresponds to elevated biogeochemical function in the hyporheic zone. <i>Science of the Total Environment</i> , 2018, 642, 742-753. | 3.9 | 60 |
| 26 | Ecosystem fluxes during drought and recovery in an experimental forest. <i>Science</i> , 2021, 374, 1514-1518. | 6.0 | 60 |
| 27 | Hydrogenation of organic matter as a terminal electron sink sustains high CO ₂ :CH ₄ production ratios during anaerobic decomposition. <i>Organic Geochemistry</i> , 2017, 112, 22-32. | 0.9 | 59 |
| 28 | Carbon Inputs From Riparian Vegetation Limit Oxidation of Physically Bound Organic Carbon Via Biochemical and Thermodynamic Processes. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2017, 122, 3188-3205. | 1.3 | 58 |
| 29 | Untargeted metabolomic profiling of <i>Sphagnum fallax</i> reveals novel antimicrobial metabolites. <i>Plant Direct</i> , 2019, 3, e00179. | 0.8 | 55 |
| 30 | Soil metabolome response to whole-ecosystem warming at the Spruce and Peatland Responses under Changing Environments experiment. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, . | 3.3 | 54 |
| 31 | Comparison of dialysis and solid-phase extraction for isolation and concentration of dissolved organic matter prior to Fourier transform ion cyclotron resonance mass spectrometry. <i>Analytical and Bioanalytical Chemistry</i> , 2012, 404, 447-457. | 1.9 | 52 |
| 32 | Using metacommunity ecology to understand environmental metabolomes. <i>Nature Communications</i> , 2020, 11, 6369. | 5.8 | 51 |
| 33 | Molecular characterization of organic matter mobilized from Bangladeshi aquifer sediment: tracking carbon compositional change during microbial utilization. <i>Biogeosciences</i> , 2018, 15, 1733-1747. | 1.3 | 46 |
| 34 | Decrypting bacterial polyphenol metabolism in an anoxic wetland soil. <i>Nature Communications</i> , 2021, 12, 2466. | 5.8 | 45 |
| 35 | Characterization of natural organic matter in low-carbon sediments: Extraction and analytical approaches. <i>Organic Geochemistry</i> , 2017, 114, 12-22. | 0.9 | 42 |
| 36 | CO ₂ and CH ₄ isotope compositions and production pathways in a tropical peatland. <i>Global Biogeochemical Cycles</i> , 2015, 29, 1-18. | 1.9 | 41 |

| # | ARTICLE | IF | CITATIONS |
|----|---|-----|-----------|
| 37 | Vertical Stratification of Peat Pore Water Dissolved Organic Matter Composition in a Peat Bog in Northern Minnesota. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2018, 123, 479-494. | 1.3 | 41 |
| 38 | Small differences in ombrotrophy control regional-scale variation in methane cycling among Sphagnum-dominated peatlands. <i>Biogeochemistry</i> , 2018, 139, 155-177. | 1.7 | 41 |
| 39 | Compositional changes of dissolved organic carbon during its dynamic desorption from hyporheic zone sediments. <i>Science of the Total Environment</i> , 2019, 658, 16-23. | 3.9 | 40 |
| 40 | Influence of acidification on the optical properties and molecular composition of dissolved organic matter. <i>Analytica Chimica Acta</i> , 2011, 706, 261-267. | 2.6 | 39 |
| 41 | Lipid Mini-On: mining and ontology tool for enrichment analysis of lipidomic data. <i>Bioinformatics</i> , 2019, 35, 4507-4508. | 1.8 | 38 |
| 42 | A History of Molecular Level Analysis of Natural Organic Matter by FTICR Mass Spectrometry and The Paradigm Shift in Organic Geochemistry. <i>Mass Spectrometry Reviews</i> , 2022, 41, 215-239. | 2.8 | 37 |
| 43 | The relative importance of methanogenesis in the decomposition of organic matter in northern peatlands. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2015, 120, 280-293. | 1.3 | 34 |
| 44 | Surface production fuels deep heterotrophic respiration in northern peatlands. <i>Global Biogeochemical Cycles</i> , 2013, 27, 1163-1174. | 1.9 | 33 |
| 45 | Elevated [CO ₂] changes soil organic matter composition and substrate diversity in an arid ecosystem. <i>Geoderma</i> , 2018, 330, 1-8. | 2.3 | 33 |
| 46 | Utilization of PARAFAC-Modeled Excitation-Emission Matrix (EEM) Fluorescence Spectroscopy to Identify Biogeochemical Processing of Dissolved Organic Matter in a Northern Peatland. <i>Photochemistry and Photobiology</i> , 2015, 91, 684-695. | 1.3 | 32 |
| 47 | Shifting mineral and redox controls on carbon cycling in seasonally flooded mineral soils. <i>Biogeosciences</i> , 2019, 16, 2573-2589. | 1.3 | 30 |
| 48 | Root-driven weathering impacts on mineral-organic associations in deep soils over pedogenic time scales. <i>Geochimica Et Cosmochimica Acta</i> , 2019, 263, 68-84. | 1.6 | 29 |
| 49 | Controls on Soil Organic Matter Degradation and Subsequent Greenhouse Gas Emissions Across a Permafrost Thaw Gradient in Northern Sweden. <i>Frontiers in Earth Science</i> , 2020, 8, . | 0.8 | 29 |
| 50 | Strong mineralogic control of soil organic matter composition in response to nutrient addition across diverse grassland sites. <i>Science of the Total Environment</i> , 2020, 736, 137839. | 3.9 | 29 |
| 51 | Molecular characterization of dissolved organic nitrogen and phosphorus in agricultural runoff and surface waters. <i>Water Research</i> , 2022, 219, 118533. | 5.3 | 27 |
| 52 | Concentration-discharge relationships during an extreme event: Contrasting behavior of solutes and changes to chemical quality of dissolved organic material in the Boulder Creek watershed during the September 2013 flood. <i>Water Resources Research</i> , 2017, 53, 5276-5297. | 1.7 | 26 |
| 53 | Spatial-temporal variations of dissolved organic nitrogen molecular composition in agricultural runoff water. <i>Water Research</i> , 2018, 137, 375-383. | 5.3 | 26 |
| 54 | Discerning Microbially Mediated Processes During Redox Transitions in Flooded Soils Using Carbon and Energy Balances. <i>Frontiers in Environmental Science</i> , 2018, 6, . | 1.5 | 25 |

| # | ARTICLE | IF | CITATIONS |
|----|--|-----|-----------|
| 55 | Hyporheic Zone Microbiome Assembly Is Linked to Dynamic Water Mixing Patterns in Snowmelt-Dominated Headwater Catchments. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2019, 124, 3269-3280. | 1.3 | 25 |
| 56 | Advanced Molecular Techniques Provide New Rigorous Tools for Characterizing Organic Matter Quality in Complex Systems. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2018, 123, 1790-1795. | 1.3 | 24 |
| 57 | Unambiguous identification and discovery of bacterial siderophores by direct injection 21 Tesla Fourier transform ion cyclotron resonance mass spectrometry. <i>Metalomics</i> , 2017, 9, 82-92. | 1.0 | 21 |
| 58 | Does dissolved organic matter or solid peat fuel anaerobic respiration in peatlands?. <i>Geoderma</i> , 2019, 349, 79-87. | 2.3 | 21 |
| 59 | Elevated temperatures drive abiotic and biotic degradation of organic matter in a peat bog under oxic conditions. <i>Science of the Total Environment</i> , 2022, 804, 150045. | 3.9 | 21 |
| 60 | Spatial gradients in the characteristics of soil-carbon fractions are associated with abiotic features but not microbial communities. <i>Biogeosciences</i> , 2019, 16, 3911-3928. | 1.3 | 19 |
| 61 | Capturing the microbial volatilome: an oft overlooked 'ome'. <i>Trends in Microbiology</i> , 2022, 30, 622-631. | 3.5 | 19 |
| 62 | Coupled Biotic-Abiotic Processes Control Biogeochemical Cycling of Dissolved Organic Matter in the Columbia River Hyporheic Zone. <i>Frontiers in Water</i> , 2021, 2, . | 1.0 | 18 |
| 63 | Microbial Communities Influence Soil Dissolved Organic Carbon Concentration by Altering Metabolite Composition. <i>Frontiers in Microbiology</i> , 2021, 12, 799014. | 1.5 | 17 |
| 64 | Low soil phosphorus availability triggers maize growth stage specific rhizosphere processes leading to mineralization of organic P. <i>Plant and Soil</i> , 2021, 459, 423-440. | 1.8 | 16 |
| 65 | Interactions between microbial diversity and substrate chemistry determine the fate of carbon in soil. <i>Scientific Reports</i> , 2021, 11, 19320. | 1.6 | 16 |
| 66 | Reduction-Oxidation Potential and Dissolved Organic Matter Composition in Northern Peat Soil: Interactive Controls of Water Table Position and Plant Functional Groups. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2019, 124, 3600-3617. | 1.3 | 15 |
| 67 | Long-Term Warming Decreases Redox Capacity of Soil Organic Matter. <i>Environmental Science and Technology Letters</i> , 2021, 8, 92-97. | 3.9 | 15 |
| 68 | Temperature and moisture alter organic matter composition across soil fractions. <i>Geoderma</i> , 2022, 409, 115628. | 2.3 | 15 |
| 69 | Plant organic matter inputs exert a strong control on soil organic matter decomposition in a thawing permafrost peatland. <i>Science of the Total Environment</i> , 2022, 820, 152757. | 3.9 | 15 |
| 70 | Development of energetic and enzymatic limitations on microbial carbon cycling in soils. <i>Biogeochemistry</i> , 2021, 153, 191-213. | 1.7 | 14 |
| 71 | Differential effects of redox conditions on the decomposition of litter and soil organic matter. <i>Biogeochemistry</i> , 2021, 154, 1-15. | 1.7 | 14 |
| 72 | Aligning the Measurement of Microbial Diversity with Macroecological Theory. <i>Frontiers in Microbiology</i> , 2016, 7, 1487. | 1.5 | 13 |

| # | ARTICLE | IF | CITATIONS |
|----|--|-----|-----------|
| 73 | Evaluation of <i>In Silico</i> Multifeature Libraries for Providing Evidence for the Presence of Small Molecules in Synthetic Blinded Samples. <i>Journal of Chemical Information and Modeling</i> , 2019, 59, 4052-4060. | 2.5 | 13 |
| 74 | Root Carbon Interaction with Soil Minerals Is Dynamic, Leaving a Legacy of Microbially Derived Residues. <i>Environmental Science & Technology</i> , 2021, 55, 13345-13355. | 4.6 | 13 |
| 75 | Molecular and Microscopic Insights into the Formation of Soil Organic Matter in a Red Pine Rhizosphere. <i>Soils</i> , 2017, 1, 4. | 1.0 | 12 |
| 76 | A Customizable Flow Injection System for Automated, High Throughput, and Time Sensitive Ion Mobility Spectrometry and Mass Spectrometry Measurements. <i>Analytical Chemistry</i> , 2018, 90, 737-744. | 3.2 | 11 |
| 77 | Nanoparticle size and natural organic matter composition determine aggregation behavior of polyvinylpyrrolidone coated platinum nanoparticles. <i>Environmental Science: Nano</i> , 2020, 7, 3318-3332. | 2.2 | 11 |
| 78 | Functional capacities of microbial communities to carry out large scale geochemical processes are maintained during ex situ anaerobic incubation. <i>PLoS ONE</i> , 2021, 16, e0245857. | 1.1 | 11 |
| 79 | Susceptibility of new soil organic carbon to mineralization during dry-wet cycling in soils from contrasting ends of a precipitation gradient. <i>Soil Biology and Biochemistry</i> , 2022, 169, 108681. | 4.2 | 11 |
| 80 | The Path From Litter to Soil: Insights Into Soil C Cycling From Long-Term Input Manipulation and High-Resolution Mass Spectrometry. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2018, 123, 1486-1497. | 1.3 | 10 |
| 81 | Single-throughput Complementary High-resolution Analytical Techniques for Characterizing Complex Natural Organic Matter Mixtures. <i>Journal of Visualized Experiments</i> , 2019, , . | 0.2 | 10 |
| 82 | Elucidating Drought-Tolerance Mechanisms in Plant Roots through ¹ H NMR Metabolomics in Parallel with MALDI-MS, and NanoSIMS Imaging Techniques. <i>Environmental Science & Technology</i> , 2022, 56, 2021-2032. | 4.6 | 10 |
| 83 | Dynamic changes in dissolved organic matter composition in a Mountain Lake under ice cover and relationships to changes in nutrient cycling and phytoplankton community composition. <i>Aquatic Sciences</i> , 2020, 82, 1. | 0.6 | 9 |
| 84 | The Volatilome: A Vital Piece of the Complete Soil Metabolome. <i>Frontiers in Environmental Science</i> , 2021, 9, . | 1.5 | 9 |
| 85 | Green infrastructure influences soil health: Biological divergence one year after installation. <i>Science of the Total Environment</i> , 2021, 801, 149644. | 3.9 | 9 |
| 86 | Dynamics of organic matter molecular composition under aerobic decomposition and their response to the nitrogen addition in grassland soils. <i>Science of the Total Environment</i> , 2022, 806, 150514. | 3.9 | 9 |
| 87 | Sequential Abiotic-Biotic Processes Drive Organic Carbon Transformation in Peat Bogs. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2021, 126, e2020JG006079. | 1.3 | 8 |
| 88 | Coupling plant litter quantity to a novel metric for litter quality explains C storage changes in a thawing permafrost peatland. <i>Global Change Biology</i> , 2021, , . | 4.2 | 8 |
| 89 | Atmo-ecometabolomics: a novel atmospheric particle chemical characterization methodology for ecological research. <i>Environmental Monitoring and Assessment</i> , 2019, 191, 78. | 1.3 | 7 |
| 90 | Organic amendments change soil organic C structure and microbial community but not total organic matter on sub-decadal scales. <i>Soil Biology and Biochemistry</i> , 2020, 150, 107986. | 4.2 | 7 |

| # | ARTICLE | IF | CITATIONS |
|-----|---|-----|-----------|
| 91 | Soil properties and biochemical composition of ground-dwelling bee nests in agricultural settings. Soil Science Society of America Journal, 2020, 84, 1139-1152. | 1.2 | 7 |
| 92 | Spatial access and resource limitations control carbon mineralization in soils. Soil Biology and Biochemistry, 2021, 162, 108427. | 4.2 | 7 |
| 93 | Radiocarbon Analyses Quantify Peat Carbon Losses With Increasing Temperature in a Whole Ecosystem Warming Experiment. Journal of Geophysical Research G: Biogeosciences, 2021, 126, e2021JG006511. | 1.3 | 7 |
| 94 | Online supercritical fluid extraction mass spectrometry (SFE-LC-FTMS) for sensitive characterization of soil organic matter. Faraday Discussions, 2019, 218, 157-171. | 1.6 | 6 |
| 95 | Natural organic matter composition and nanomaterial surface coating determine the nature of platinum nanomaterial-natural organic matter corona. Science of the Total Environment, 2022, 806, 150477. | 3.9 | 6 |
| 96 | The importance of nutrients for microbial priming in a bog rhizosphere. Biogeochemistry, 2021, 152, 271-290. | 1.7 | 4 |
| 97 | Organic matter transformations are disconnected between surface water and the hyporheic zone. Biogeosciences, 2022, 19, 3099-3110. | 1.3 | 4 |
| 98 | Investigation into the Stabilization of Soil Organic Matter by Microbes. Microscopy and Microanalysis, 2015, 21, 863-864. | 0.2 | 2 |
| 99 | Effects of Microbial-Mineral Interactions on Organic Carbon Stabilization in a Ponderosa Pine Root Zone: A Micro-Scale Approach. Frontiers in Earth Science, 2022, 10, . | 0.8 | 1 |
| 100 | MOLECULAR AND MICROSCOPIC INSIGHTS INTO THE FORMATION OF SOIL ORGANIC MATTER IN A RED PINE RHIZOSPHERE. , 2017, , . | | 0 |