

| Poster Board Number | Title                                                                                                                                         | Presenting author | Affiliation                                         | Country                  |
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| PS3.15.001          | <i>Agroforestry enhances soil multifunctionality via differential modulation of key microbial ecological modules in degraded purple soils</i> | Xiaohong Wu       | Central South University of forestry and technology | China                    |
| PS3.15.002          | <i>Anaerobic Biotransformation of Isoprene: Mechanisms and Functional Microbial Characterization</i>                                          | Jiaojiao Yang     |                                                     | Netherlands              |
| PS3.15.003          | <i>Anaerobic Methanotrophic Archaea as Gatekeepers of Carbon Loss from Lake Sediments of a Permafrost Landscape</i>                           | Heyu Lin          | Queensland University of Technology                 | Australia                |
| PS3.15.004          | <i>A novel extremely acid-tolerant actinobacterial sulfide oxidizer links sulfide oxidation to nitrite reduction in sewers</i>                | Quan He           | University of Science and Technology of China       | China                    |
| PS3.15.005          | <i>Anoxic biological nitrite oxidation in the presence of MnO<sub>2</sub></i>                                                                 | Yangbo Chen       | Hiroshima University                                | Japan                    |
| PS3.15.006          | <i>Arctic soil C and N cycling are linked with microbial adaptations during drought</i>                                                       | Anders Priemé     | Department of Biology, University of Copenhagen     | Denmark                  |
| PS3.15.007          | <i>Assessment of the nitrate reduction pathways and dark oxygen production abilities of <i>microbulbifer donghaiensis</i></i>                 | Toshiki Nagakura  | University of Southern Denmark (SDU)                | Denmark                  |
| PS3.15.008          | <i>Atmospheric trace gas oxidation supports diverse microbial communities on Mount Tongariro, Aotearoa-New Zealand</i>                        | Jean Power        | University of Canterbury                            | New Zealand              |
| PS3.15.009          | <i>Beyond substrate breakdown: microbial synthesis structures organic compound composition in anaerobic digestion</i>                         | Xingsheng Yang    |                                                     | China                    |
| PS3.15.010          | <i>Beyond the ocean: genes involved in DMSP, DMS and MeSH metabolism are widespread in inland saline lakes</i>                                | Attila Szabó      | Swedish University of Agricultural Sciences         | Sweden                   |
| PS3.15.011          | <i>Biochar-Methane Interactions: Linking Adsorption Capacity to Methanotroph Growth Dynamics</i>                                              | Alma Siggins      | University of Galway                                | Ireland                  |
| PS3.15.012          | <i>Biogeochemical controls on wood biomass sequestration at the anoxic sediment-water interface</i>                                           | Dror Angel        | Haifa University                                    | Israel                   |
| PS3.15.013          | <i>Bloom-driven microbial succession shapes methylmercury dynamics in coastal surface waters</i>                                              | Hannah M. Adams   | University of California San Diego                  | United States of America |
| PS3.15.014          | <i>Carbon monoxide-driven proton respiration as a survival strategy</i>                                                                       | Yuka Katayama     |                                                     | Australia                |

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| PS3.15.015          | <i>Changes in N<sub>2</sub>O Emissions and Microbial Community Dynamics under Nitrification-Promoting and -Suppressing Operational Conditions in a Full-Scale Wastewater Treatment Plant</i> | Yoshihiro Ishii     | National Institute for Land and Infrastructure Management | Japan                    |
| PS3.15.016          | <i>Chemical and microbial diversity drive the altitude-dependent greenhouse gas dynamics in the upper Brahmaputra River</i>                                                                  | Feijian Mao         |                                                           | China                    |
| PS3.15.017          | <i>Comparative genomics reveals novel rhizobial N<sub>2</sub>-fixers in the ocean</i>                                                                                                        | Hon Lun Wong        |                                                           | Germany                  |
| PS3.15.018          | <i>Conserved multiheme cytochrome machinery for extracellular electron transfer is widespread and transcriptionally active across deep peat profiles</i>                                     | Giulia Fiorito      | ETH Zürich                                                | Switzerland              |
| PS3.15.019          | <i>Copper Availability Modulates Co-metabolic Ethane Oxidation</i>                                                                                                                           | Jaeho Choi          | KAIST                                                     | Korea, Republic of       |
| PS3.15.020          | <i>Copper bioavailability and soil chemistry impacts N<sub>2</sub>O flux responses and microbial activity</i>                                                                                | Eva Biggs           |                                                           | New Zealand              |
| PS3.15.021          | <i>Cryptic sulfur cycling sustains lithotrophy in the deep biosphere of ferruginous Lake Towuti, Indonesia</i>                                                                               | Jens Kallmeyer      | German Research Centre for Geosciences (GFZ)              | Germany                  |
| PS3.15.022          | <i>Cultivation of Particle-Attached Nitrous Oxide Reducers From Oxygenated Surface Waters</i>                                                                                                | J. Catherine Hexter | Princeton University                                      | United States of America |
| PS3.15.023          | <i>Development of a high-throughput method for investigating carbon allocation in microbial pure cultures</i>                                                                                | Yuhua Li            | University of Vienna                                      | Austria                  |
| PS3.15.024          | <i>Differential Effects of Leaf and Root compounds of Ophiopogon japonicus on Rumen Methanogenesis and Microbial Community Reshaping</i>                                                     | Miye Kwon           |                                                           | Korea, Republic of       |
| PS3.15.025          | <i>Drivers of microbial carbon turnover on sinking oceanic particles in the sub-polar Icelandic Basin</i>                                                                                    | Cordelia Roberts    | Imperial College London                                   | United Kingdom           |
| PS3.15.026          | <i>Ecology of methyl-coenzyme M reductase encoding Thermoproteota</i>                                                                                                                        | Zack Jay            |                                                           | United States of America |
| PS3.15.027          | <i>Ecosystem-scale patterns of methane accumulation challenge the assumption of sulfate-driven suppression of methanogenesis in lakes</i>                                                    | Charlotta Hagström  |                                                           | Sweden                   |
| PS3.15.028          | <i>Electron acceptor availability determines the use of methyltransferase systems in Methanomassiliicoccus luminyensis, as shown by comparative proteomics</i>                               | Katrina Funkner     |                                                           | Germany                  |

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| PS3.15.029          | <i>Elevated alkalinity reshapes carbonate chemistry and reprograms metabolism in the diatom <i>Chaetoceros muelleri</i></i>                                                     | yanan su                |                                                                  | China              |
| PS3.15.030          | <i>Evolutionary remodeling of gas tunnels in carbon monoxide dehydrogenase revealed by large-scale AlphaFold structural analysis</i>                                            | Kimiho Omae             | Geobiology and Astrobiology Laboratory, RIKEN                    | Japan              |
| PS3.15.031          | <i>Examining Methanotrophic Microbial Communities in Petroleum Mining Impacted Environments</i>                                                                                 | Quintin Towert          | University of Calgary                                            | Canada             |
| PS3.15.032          | <i>Excess nitrogen loading amplifies warming-induced loss of stabilized soil carbon</i>                                                                                         | Mengmeng Wang           |                                                                  | China              |
| PS3.15.033          | <i>Expanding the view of planetary carbon fixation through genome-resolved metagenomics</i>                                                                                     | Anna Mankowski          |                                                                  | Germany            |
| PS3.15.034          | <i>Exploration of Microbial Taxa Associated with Changes in N<sub>2</sub>O Emissions in Wastewater Treatment Processes</i>                                                      | Fuuka Aoyagi            | National Institute for Land and Infrastructure Management, Japan | Japan              |
| PS3.15.035          | <i>Exploring microbial drivers of halogen cycling in pristine and polluted environments</i>                                                                                     | Hauke Smidt             | Wageningen University & Research                                 | Netherlands        |
| PS3.15.036          | <i>Exploring Sulfate as an Alternative Electron Acceptor: A Potential Strategy to Mitigate N<sub>2</sub>O Emissions in Upland Arable Soils</i>                                  | Hyun Ho Lee             | Korea Advanced Institute of Science and Technology               | Korea, Republic of |
| PS3.15.037          | <i>Fluctuations in ammonia-oxidizing bacteria biomass density as a potential driver of seasonal variations in N<sub>2</sub>,O emissions from activated sludge nitrification</i> | Minho Lee               |                                                                  | Korea, Republic of |
| PS3.15.038          | <i>From molecular mechanism to soil performance: Scale-dependent microbial responses to nitrification inhibitors</i>                                                            | Evangelia Papadopoulou  | University of Thessaly                                           | Greece             |
| PS3.15.039          | <i>Genomic characterization of methane-cycling microbiomes in a subtropical reservoir</i>                                                                                       | Cristina Rossi Nakayama | Federal University of São Paulo                                  | Brazil             |
| PS3.15.040          | <i>Genomic insights into adaptive strategies of Methanoperedenaceae (ANME-2d) in low-flux deep-sea cold seep sediments</i>                                                      | Shengwei Hou            | Southern University of Science and Technology                    | China              |
| PS3.15.042          | <i>Groundwater methane paradox</i>                                                                                                                                              | Shengjie Li             |                                                                  | China              |
| PS3.15.043          | <i>Harnessing soil nutrient stoichiometry: a mechanistic approach to sustainable grassland management via microbiota mediation</i>                                              | Jianqing Tian           | university of limerick                                           | Ireland            |

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| PS3.15.044          | <i>How biochar and organic manure regulate soil C-N metabolism and greenhouse gas emissions: insights from metabolomic and microbial community analyses</i>                         | Wendan Xiao                 | Zhejiang Academy of Agricultural Sciences                                   | China                     |
| PS3.15.045          | <i>How do autotrophic nitrate-reducing Fe(II)-oxidizing microbial communities remain competitive? Microbial control of abiotic iron oxidation and mixed electron donor dynamics</i> | Cristina Escudero           |                                                                             | Germany                   |
| PS3.15.046          | <i>Hydrological gradients in depressional wetlands drives divergence in microbial carbon use efficiency</i>                                                                         | Christian White             | Argonne National Laboratory                                                 | United States of America  |
| PS3.15.047          | <i>Isolation and Characterization of a Reductive Acetogen: The Effects of Trace Elements on Acetate Production</i>                                                                  | Ye Jin Gwak                 | Kunsan National University                                                  | Korea, Republic of        |
| PS3.15.048          | <i>Isolation of ammonia-oxidizing archaeon Nitrososphaera sp. from an enrichment culture co-existing with Nitrobacter sp. A67</i>                                                   | Yushin Nakamura             | Chuo-University                                                             | Japan                     |
| PS3.15.049          | <i>Linking microbial diversity, carbon use efficiency and ecosystem restoration efforts across European and South African soils</i>                                                 | Miguel Ángel Salinas-García | University of Copenhagen                                                    | Denmark                   |
| PS3.15.050          | <i>Long-term soil storage highlights the role of precipitation history in microbial dynamics and CO<sub>2</sub> emissions</i>                                                       | Kirill Bogdanov             | The University of Otago                                                     | New Zealand               |
| PS3.15.051          | <i>Mapping Microbial Carbon Catabolic Preferences from Genomes to Ecosystems</i>                                                                                                    | Xue Guo                     | Research Center for Eco-Environmental Sciences. Chinese Academy of Sciences | China                     |
| PS3.15.052          | <i>Metabolic functions in spatially segregated biofilm and suspended microbial communities control the methane and nitrogen fluxes</i>                                              | Carlos Bibiano              |                                                                             | Saudi Arabia              |
| PS3.15.053          | <i>Metabolic versatility of aerobic methane-oxidizing bacteria under anoxia in aquatic ecosystems</i>                                                                               | Biao Li                     | Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences   | China                     |
| PS3.15.054          | <i>Metagenomic evidence that long-term liming reshapes soil nitrogen and carbon cycling gene profiles</i>                                                                           | Sihyun Park                 | Kyungpook National University                                               | Korea, Republic of        |
| PS3.15.055          | <i>Metagenomic insights into phages from global wetlands</i>                                                                                                                        | He-Ping Liu                 |                                                                             | Taiwan, Province of China |
| PS3.15.056          | <i>Metatranscriptomics reveals active microbial drivers of greenhouse gas emissions in tropical peat soils</i>                                                                      | Mikk Espenberg              | University of Tartu                                                         | Estonia                   |

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| PS3.15.057          | <i>Methanotroph community dynamics under ethylene exposure in rice field soil</i>                                                                                              | Sheremet Andriy   | University of Calgary                                            | Canada                   |
| PS3.15.058          | <i>Methanotrophy by a novel Mycobacterium isolate overcoming ammonia inhibition</i>                                                                                            | Hiromi Kambara    | National Institute of Advanced Industrial Science and Technology | Japan                    |
| PS3.15.059          | <i>Microalgal bloom demise drives microbiome restructuring and nitrogen cycling in oxic surface water</i>                                                                      | Monica Albuja     | Korea Advanced Institute of Science and Technology               | Korea, Republic of       |
| PS3.15.060          | <i>Microbial catabolism of sulfonolipids contributes to soil sulfur cycling</i>                                                                                                | Clara Priemer     | University of Vienna                                             | Austria                  |
| PS3.15.061          | <i>Microbial community genomic architecture and metabolic flexibility favor nitrogen recycling over loss in low-O<sub>2</sub> Eastern Tropical North Pacific (ETNP) waters</i> | Julia Huggins     |                                                                  | United States of America |
| PS3.15.062          | <i>Microbial kelp decomposition limits carbon sequestration</i>                                                                                                                | Luka Wright       | University of Western Australia                                  | Australia                |
| PS3.15.063          | <i>Microbial mechanisms underlying coupled methane oxidation and denitrification under micro-oxic conditions in farmland soils</i>                                             | Jing Zhang        | China agricultural university                                    | China                    |
| PS3.15.064          | <i>Microbial Oxidation of Short-chain Gaseous Alkanes</i>                                                                                                                      | Mengxiong Wu      | Nanjing University                                               | China                    |
| PS3.15.065          | <i>Microbial processes at tree-pasture edges contribute to soil carbon stabilization beneath small tree patches</i>                                                            | Kara Allen        | Bioeconomy Sciences Institute                                    | New Zealand              |
| PS3.15.066          | <i>Multi-omics reveals Syntrophomonas as a key extracellular DNA degrader in oligotrophic hot springs</i>                                                                      | Jian-Yu Jiao      |                                                                  | China                    |
| PS3.15.067          | <i>Nitrate-respiring heterotrophs are concealed contributors to global sulfur cycle with implications for greenhouse gas mitigation</i>                                        | Bo Shao           |                                                                  | Australia                |
| PS3.15.068          | <i>Non-canonical nitrogen metabolism by comammox Nitrospira and ammonia-oxidizing archaea within rotating biological contactors of a municipal wastewater treatment plant</i>  | Alexander Umbach  | University of Waterloo                                           | Canada                   |
| PS3.15.069          | <i>Novel insights into dimethylsulfide production in cold seeps and marine sediments</i>                                                                                       | Yunhui Zhang      |                                                                  | China                    |
| PS3.15.070          | <i>Overlooked but active: assessing methanogenic communities in mangrove sediments</i>                                                                                         | Nicole Matos-Vega | Montana State University                                         | United States of America |

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| PS3.15.071          | <i>Phenological stage-specific DOM transformations sustain N2 fixation during rice growth in paddy soil</i>                                                     | Xiaomin Wang          | Institute Of Soil Science, Chinese Academy Of Sciences                          | China                    |
| PS3.15.072          | <i>Physiological Adaptions of Methanogens to Oxygen Exposure</i>                                                                                                | Amelie Heidenreich    |                                                                                 | Denmark                  |
| PS3.15.073          | <i>Plastic Biofilms as Hotspots of Nitrogen Cycling in Estuarine Ecosystems: Comparative Ecological, Genomic, and Transcriptomic Analysis Across Substrates</i> | Xiao-Ru Yang          | Institute of Urban Environment, Chinese Academy of Sciences                     | China                    |
| PS3.15.074          | <i>Precipitation legacy and seasonal filtering structure viral-microbial functional convergence across Mediterranean grasslands</i>                             | Sergio Guajardo-Leiva | Universidad de Talca                                                            | Chile                    |
| PS3.15.075          | <i>Predicting secondary production across marine biomes using environmental variation and heterotrophic bacterial community composition</i>                     | Melissa Brock         | University of California, San Diego                                             | United States of America |
| PS3.15.076          | <i>Proposing a Putative Protein Megacomplex Coupling CO2 Reduction with Flavin-Based Electron Bifurcation from a Sulfur-disproportionating Bacterium</i>        | Yueran Zhao           |                                                                                 | Japan                    |
| PS3.15.077          | <i>Quantifying Fungal Melanin in Soils: Implications for Long-Term Carbon Stability</i>                                                                         | Sylwia Adamczyk       | Natural Resources Institute Finland                                             | Finland                  |
| PS3.15.078          | <i>Rapid yet constrained thermal adaptation of soil microbial functions</i>                                                                                     | Charlotte Alster      | Lincoln University                                                              | New Zealand              |
| PS3.15.079          | <i>Redox-stratified sediments in a meromictic lake harbour distinct electroactive microbial communities impacting iron, manganese, and sulphur cycling</i>      | Marta Sudo            | Aarhus University                                                               | Denmark                  |
| PS3.15.080          | <i>Revealing the potential of methanotrophs' to deal with phosphorus scarcity</i>                                                                               | Eleonora Silvano      | University of Warwick                                                           | United Kingdom           |
| PS3.15.081          | <i>Seagrass-derived carbon suppresses nitrification and N2O emissions in benthic comammox and canonical nitrifier communities</i>                               | Ruilin Su             | Department of Ocean Science, The Hong Kong University of Science and Technology | Netherlands              |
| PS3.15.082          | <i>Sediments as potential sources of non-cyanobacterial diazotrophs in Arctic sea ice and seawater</i>                                                          | Haitian Bo            |                                                                                 | Japan                    |
| PS3.15.083          | <i>Soil pH Independence of Group 1h High-Affinity H2-Oxidizing Bacteria</i>                                                                                     | Lijun Hou             | Xinjiang Academy of Agricultural Sciences                                       | China                    |
| PS3.15.084          | <i>Spatial Variation and Potential Driving Factors of Methane Emissions from a Tropical Eutrophic Reservoir in Vietnam</i>                                      | Thi Hoang Yen Tran    | Shibaura Institute of Technology                                                | Japan                    |

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| PS3.15.085          | <i>Spatio-temporal analysis of activated sludge GHG emissions</i>                                                                                                              | Zachary Thompson   | Newcastle University                           | United Kingdom           |
| PS3.15.086          | <i>Sterilized soils are not inert: moisture-dependent microbial resurgence after autoclaving and <math>\hat{\text{I}}^3</math>-irradiation</i>                                 | Ruixia Han         |                                                | China                    |
| PS3.15.087          | <i>Sub-zero methanogenesis drives carbon emissions at a permafrost thaw slump in the Canadian Arctic</i>                                                                       | Lexi Joyce         | University of Guelph                           | Canada                   |
| PS3.15.088          | <i>Summer Drought Impacts on Peatland Microbiomes: Insights into Methane and Nitrogen Cycling and Microbial Food Webs</i>                                                      | Haitao Wang        | University of Greifswald                       | Germany                  |
| PS3.15.089          | <i>Sunlight and crop litter identity shape the litter microbiome</i>                                                                                                           | Felipe Cabrera     | Universidad de Buenos Aires                    | Argentina                |
| PS3.15.090          | <i>Light-regulated Fe0-dependent denitrification and dissimilatory nitrate reduction by nano–bio electric syntrophic consortium</i>                                            | Tianyu Gao         | Chinese Academy of Sciences                    | China                    |
| PS3.15.091          | <i>Testing limits to atmospheric methane removal by tree stem methanotrophs</i>                                                                                                | Alejandra Ordonez  | University of Birmingham                       | United kingdom           |
| PS3.15.093          | <i>The transportation and degradation processes of organic matter shape the ecology and evolution of degrading genes in global aquatic sediments</i>                           | Xuying Zhu         |                                                | China                    |
| PS3.15.094          | <i>The unexpected effects of NaCl on a N2-fixing cyanobacterium</i>                                                                                                            | Si Tang            |                                                | China                    |
| PS3.15.095          | <i>Thermal adaptation of Synechococcus to long-term warming selection</i>                                                                                                      | Xiaodong ZHANG     | Hong Kong University of Science and Technology | Hong Kong                |
| PS3.15.096          | <i>Transcriptome analyses and ultrastructural observations revealed Nitrobacter vulgaris CN101 conditionally regulates expression of two Calvin-Benson cycle gene clusters</i> | Ayuri Dambara      | Chuo University                                | Japan                    |
| PS3.15.097          | <i>Trick me twice: distinct physiological functions of NXR paralogues in Nitrospira moscoviensis</i>                                                                           | Petra Pjevac       |                                                | Austria                  |
| PS3.15.098          | <i>Tricksy Lights: Battles between the Two Towers of the Anaerobic Phosphorus and Carbon Redox Cycles</i>                                                                      | Ruiwen Hu          | Lawrence Berkeley National Laboratory          | United States of America |
| PS3.15.099          | <i>Ultra-high enrichment and high-quality genome of a novel acid-tolerant soil comammox Nitrospira</i>                                                                         | Hirotsugu Fujitani |                                                | Japan                    |

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| PS3.15.100          | <i>Uncovering the metabolic role of CuMMO-Containing Betaproteobacteria in Oil Sands Tailings storage facilities</i>               | Samuel Imisi Awala      | Chungbuk National University  | Canada                   |
| PS3.15.102          | <i>Understanding microbial molybdenum uptake strategies at marine methane seeps</i>                                                | Margaret Weng           |                               | United States of America |
| PS3.15.103          | <i>Understanding variability in biological nitrification inhibition for effective N<sub>2</sub>O mitigation in grazed pastures</i> | Saman Bowatte           | Bioeconomy Science Institute  | New Zealand              |
| PS3.15.104          | <i>Unexpected diversity and environmental responses in N<sub>2</sub>O production pathways in microbe-sponge symbiosis</i>          | YuJing Chiou            | University of New South Wales | Australia                |
| PS3.15.105          | <i>ViP-SiP: Linking viral activity to carbon cycling in peatlands via virus protein stable-isotope probing</i>                     | Arianna Farolfi         |                               | France                   |
| PS3.15.106          | <i>Virus-host interactions mediate methane cycling following water table shifts in peatlands</i>                                   | Yiling Wang             |                               | China                    |
| PS3.15.107          | <i>When carbon sinks emit greenhouse gases: microbial insights into coastal climate regulation</i>                                 | Marion Dolivet-Maréchal |                               | France                   |
| PS3.15.108          | <i>Widespread methane oxidation in active layer soils across an Arctic climate gradient</i>                                        | Jenna Scharnowski       | University of Guelph          | Canada                   |