**ISEB 2025**

Trinity College Dublin

27–31 October 2025

DRAFT PROGRAMME

**Monday**

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| 9:00-10:00 | Billions of years of biogeochemistry: from the early Earth to contemporary engineering | **Plenary** Phoenix, V. |
|  | **Microbial Responses to Anthropogenic and Climate Pressures** |  |
| 10:00-10:30 | Fire as a key driver of ecosystem biogeochemical cycles | Chen, C. |
| 10:30-11:00 | **BREAK** |  |
| 11:00-11:30 | Externally added silicon bioavailability in agricultural soils | Galán-Pérez, J.A., Foley, L., Frías-Celayeta, J., O’Reilly, S., and Celis, R. |
| 11:30-12:00 | Organic matter transformation and dynamics of phosphorus forms in eutrophic and dystrophic terrestrial ecosystems under different moisture conditions | Dębicka, M., Bogacz, A. and Samol, A. |
| 12:00-12:30 | Linking microbial diversity to soil health: A metabarcoding-based assessment across Irish land use types | Mupamhadzi, T.L, Moffat, A., Khatri, S., Bartley, M., Buttimer, H., Jordan, S.F., Kelleher, B., Schmidt, O., Caruso, T. and O’Reilly, S.S. |
| 12:30-13:00 | Using microbial responses to soil constraints as indicators of soil health in sugarcane and grain cropping systems | Liu, X. and Chen, C. |
| 13.00-14.00 | **LUNCH** |  |
| 14:00-14:30 | Ice darkening on Turner Glacier in Auyuittuq National Park, Nunavut, Canada | Gorwill, C., Thomson, L.I. and Omelon, C.R. |
| 14:30-15:00 | Impacts of diesel fuel on microbial dynamics in Great Lakes wetlands and nearshore habitats | Jobin, P., McKay, R. M. and Weisener, C. G. |
| 15:00-15:30 | Impacts of fertilization on greenhouse gas flux and microbial dynamics in an agricultural water | Ras, C., Phillips, L., Drury, C., Seuradge, B., Calder, W., Reid, T. and Weisener, W. |
| 15.30-16.00 | Composition of artificial root exudate treatment impacts microbial function and metal mobility in contaminated brownfield soils | Goodey, N. and Zaheer, N. |
| 16.00-16.30 | **BREAK** |  |
| 16.30-17.00 | Soil C and N storages response to land-use and management changes: A comparison of various plant-soil ecosystems in Northeast Japan | Cheng, W. |
| 17:00-17:30 | Exploring biogeochemical response, source identification and ecological function using advance genomics in the western Lake Ontario watershed, Ontario Canada | Weisener, C., Hilbert, Z., Gleason, McKay, R.M. and Thomas, J. |
| 17.30-18.00 | Contributions from methylotrophic methanogenesis in coastal wetland soils | Engel, A.S., Summerlot, K. Paterson, A.T., Schindler, K.J., Whitehead, S., Yeager, K.M., Bowles, M.W. and B.J. Roberts |

**Tuesday**

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| 08.30-09:30 | From glaciers to oceans: microbes, minerals and nutrient stories | **Plenary**  Benning, L.G. |
| 09.30-10.30 | New geological and biological constraints on Earth’s earliest biosphere | **Plenary**  Steuken, E. |
| 10:30-11:00 | **BREAK** |  |
| **Theme** | **Historical and Paleo Perspectives in Microbial Biogeochemistry** |  |
| 11:00-11:30 | Insights into the paleoecology of microbially-dominated carbonate lakes from the Eocene-Oligocene Transition of South Dakota | Keenan, S. |
| 11:30-12:00 | Co-cycling of arsenic and phosphorus in Precambrian oceans and impact on biodiversification and oxygenation | Chi Fru, E. |
| 12:00-12:30 | Extreme life and hydrogen formation in the deep Precambrian crust | Nenonen, V.V. |
| 12:30-13:30 | LUNCH |  |
| **Theme** | **Geomicrobiology Across Environments** |  |
| 13.30-14.00 | Microbial mats in salt flats: microbial communities and mineralogical composition of layered structures | Dittrich, M., Voegelin, A., Al-Saad Al-Kuwari, H.A., Bontognali, T.R.R. and Bürgmann, H. |
| 14.00-14.30 | Potential of microbial hydrogen consumption during underground hydrogenstorage in a new salt cavern solution mined with pond water | Dohrmann, A.B. and Krüger, M. |
| 14.30-15.00 | Microbial and mineral characterisation of an arsenic-rich calciner site | Tomlinson, N.O., Schofield, P.F., Jungblut, A.D., Hodson, M.E. and Santos, A.L. |
| 15.00-15.30 | Year-long cave experiment for the understanding of subsurface microbial communities influence on karstic system processes | Peugnet, G., Pisapia, C., Durand, L., Champollion, C., Vernant, P., Isambert, A. Brunelle, A., Wild, B. Bouquerel, H., Bouchez, J., Bergsten, P., Lecourt, L. Souilah, A. Leblanc, M., Skonieczny, C., Ménez, B.E. and Gérard, E. |
| 15.30-16.00 | Microbial dynamics inside three French heritage caves | Talleu, C., Shirokova, L., Pisapia, C., Bousta, F., Leplat, J., Franç, A., Moye, J., Bourges, F., Genty, D., Touron, S., Galant, P. and Lartiges, B. |
| 16.00-16.30 | Break |  |
| 16:30-17:30 | Lipid taphonomy in non-skeletal carbonates: implications for biomarker reconstruction of ancient environments and biology | S. O'Reilly, C.Y., Chen, D. McGee, T. Bosak, R. Summons |
| 17.30-18:00 | Mineral-Microbe Interactions and Coevolution Across Critical Geological Time Period | Dong, H. |
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**Thursday**

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|  | **Microbial Processes in Biogeochemical Cycles** |  |
| 9:00-10:00 | Bacterial Biomineralization: Diversity, Geochemical Function, and Evolutionary Insights | **Plenary**  Benzerara, K. |
| 10:00-10:30 | Title to be confirmed | **Virtual**  Takahashi, Y. |
| 10:30-11:00 | Break |  |
| 11:00-11:30 | Pyrite as a Microbial Energy Source Under Anoxic Circumneutral Nitrate-Rich Conditions | Escudero, C. |
| 11:30-12:00 | Hydrogenotrophic methanogenesis supported by calcium carbonate minerals | Weber, K. |
| 12:00-12:30 | Combining microbial, isotopic and residence time data to track groundwater flow paths in a multi-layered aquifer system | Purkamo, L., Ikonen, J., Pétré, M-A., Putkinen, N., Myllyperkiö, M., Hokajärvi, A-M., Pitkänen, T. and Miettinen, I. |
| 12:30-13:00 | Thermodynamic constraints and responses in natural microbial communities: Insights from high-resolution monitoring | Seto, M., Ito, K., Kashima, H. Shinohara, R., Wada, S., Itai, T., Toju, H., Morimoto, K., Kirihara, R. and Ito, M. |
| 13:00-14:00 | **LUNCH** |  |
| 14:00-14:30 | Microbial transformation of antimony and Fe(III) oxyhydroxides and the biogeochemical cycling of toxic elements | Hamamura, N., Takeoka, C., Yamashita, D., Yoshida, N., Kashima, H. and Mitsunobu, S. |
| 15:30-17:30 | *Poster session* |  |
| 19:30-22:30 | Banquet |  |

**FRIDAY**

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|  | **Innovative Approaches in Biogeochemistry and Geomicrobiology** |  |
| 9:00-9:30 | Profiling the soil lipidome of soil and land use types in Ireland: a baseline study of fatty acids as indicators of soil health | Bartley, M.M., Buttimer, H., Mupamhadzi, T., Jordan, S.F., Kelleher, B., Moffat, A., Schmidt, O., and O'Reilly, S. |
| 9:30-10:00 | Passive Methanotrophic Biofilters for Effective Mitigation of Low-Concentration Methane Emissions | Ghaani, M., Bellec, M., Gill, A. and Ali, M. |
| 10:00-10:30 | Integrating Time Series Chemistry and eDNA for H2S Risk Detection | Kirihara, R., Ito, M., Ito, K., Kashima, H., Shinohara, R., Wada, S., Itai, T., Toju, H., Morimoto, K. and Seto, M. |
| 10:30-11:00 | **BREAK** |  |
|  | Labeling of active arsenate- and antimonate-reducing microbes in peat soil used for treatment of mining-affected waters | Kujala, K. |
| 11.00-11.30 | Engineering the bio-geo interface for bioremediation and critical metal bioprocessing | Lloyd, J.R. |
| 11.30-12.30 | Publishing   * How to pick the best journal for your paper * How to be(come) a good reviewer * Q&A | Clarke, N.  Ortiz Guerrero, C. Murphy, K. |
|  | **End of meeting** |  |

**POSTER SESSION**

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| Zi, Y., Reid, T., MacIsaac, H.J. and Weisener, C. | Investigating Microbial influences on sediment Nutrient internal loading mechanisms in the Great Lakes Canada |
| Dohrmann, A.B. and Krüger, M. | Potential of microbial hydrogen consumption during underground hydrogenstorage in a new salt cavern solution mined with pond water |
| Buttimer, H., Bartley, M.M., Mupamhadzi, T.L., Moffat A., Schmidt, O., Jordan, S.F., Kelleher, B.P. and O’Reilly, S. | Biogeochemical methods for monitoring land management impacts on soil health - A baseline study of Irish Soils |
| Makio, C.L., McCrudden, D., McEleney O’Reilly, C., Nash, R. and O’Reilly, S. | Overview of sedimentary carbon dynamics on coastal and estuarine ecosystems; West and North-West Ireland coast as a case study |
| Detels, S., Escudero, C. and Kappler, A. | Thermodynamic constraints and identification of optimal geochemical conditions for Feammox |
| Dignam, R., Galán-Pérez, J. A. and O’Reilly, S. | Evaluation of a biodegradable biopolymer carrier system for enhanced fungicide adhesion in agriculture |
| Morimoto, K., Ito, M., Ito, K., Kashima, H., Wada, S., Itai, T., Shinohara, R., Toju, H., Kirihara, R. and Seto, M. | Exploring the Drivers of ORP Response Based on Correlation and Causal Analysis |
| Abreldaal, P., Purkamo, L. and Koit, O. | Mapping microbial community diversity in relation to redox processes in Estonian groundwater systems |
| Skosey-LaLonde, E. | Geochemical approach to Basin palaeothermometry and paleoclimate of late Quaternary coastal Mozambique |