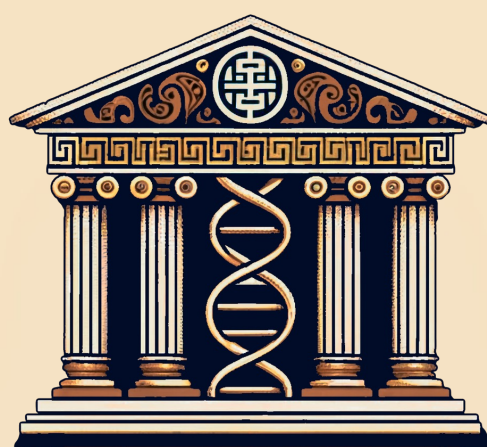


MYTH TO MOLECULES:
TALES OF HEROES IN THE IBP



INSTITUTE OF BIOGEOCHEMISTRY
AND POLLUTANT DYNAMICS

16TH PHD CONGRESS

APRIL 5TH 2024

8:30 – 19:00

ETH ZENTRUM, CHN BUILDING

ETH zürich **eawag**
aquatic research 000

WELCOME

Welcome to the 16th IBP PhD Congress at ETH Zentrum, where ancient narratives meet modern-day research. As we embark on “Myth to Molecules: Tales of Heroes in the IBP,” prepare to unfold the scrolls of knowledge, examining the environment through the lens of heroes past and present.



Our congress is a conclave for the curious, offering abundant opportunities for budding and seasoned researchers alike to network, share, and ignite conversations that resonate beyond the halls of academia. We invite you to immerse in this scholarly symposium, revel in the discoveries, and contribute to the ongoing saga of science at the Institute of Biogeochemistry and Pollutant Dynamics.

Ἐγὼ δ' ἐφιλοσόφουν ἀναπεσών

I was philosophizing while lying down. - Aristophanes, "The Frogs"



CHAIRS: JANA HÄRRI, STEFANIE MAYER

ORGANISERS: DOMINIC ERIKSSON, MARCEL SCHEIWILLER AND JOEL WONG

PROGRAM

-  GREEN FLOOR 8:30 REGISTRATION
-  CHN C14 9:00 SOLAR GREETING
Welcome and Opening Remarks from Prof. Dr. Kristopher McNeill
-  CHN C14 9:20 SESSION I
The Forge of Hephaestus: Crafting Tools for Environmental Insight
-  GREEN FLOOR 10:20 APOLLO'S INTERLUDE
Poster Session α & Coffee
-  CHN C14 11:40 SESSION II
The Labyrinth of Minos: Navigating Environmental Mysteries
-  CAB FOODLAB 12:40 MIDDAY FEAST
-  CHN C14 14:10 SESSION III
Argus Panoptes' Watch: Monitoring the Natural Realm
-  GREEN FLOOR 15:10 ARTEMIS' INTERLUDE
Poster Session β & Coffee
-  CHN C14 16:30 SESSION IV
Hercules' Labours: Tackling Environmental Challenges
-  STUZ CAB F21 17:30 HONOURS & BANQUET
-  STUZ CAB F21 19:00 FESTIVE REVELRIES

SESSION I



Inspired by Hephaestus, the god of fire and craftsmanship, this session delves into the innovation of methodologies and tools developed to enhance environmental risk assessments and ecological modeling, akin to forging new instruments for better understanding the environment.

THE FORGE OF HEPHAESTUS: CRAFTING TOOLS FOR ENVIRONMENTAL INSIGHT

SVEN MOSIMANN

A Cell Line-Based RNA- and RIBOseq Approach Towards Understanding Chemically-Induced Growth Inhibition.

HYUNJOO HONG

Form-Specific Prospective Environmental Risk Assessment of Graphene-Based Materials in European Freshwaters.

EMMA CHOLLET RAMAMPIANDRA

How Robust Are Species Distribution Models Against Noise in the Data?

SESSION II



From the complex Labyrinth of Minos, this session explores intricate environmental phenomena and processes, such as the journey of microplastics through water bodies and the intricate balance within microbial communities, unraveling the mysteries of nature's intricate pathway.

THE LABYRINTH OF MINOS: NAVIGATING ENVIRONMENTAL MYSTERIES

FRANCESCO PARRELLA

Impacts of Natural Particles on Microplastics Deposition Rates in Freshwater.

DIVVYA RAMESH

Limits to the Evolution of Metabolic Dependence in Spatially Structured Microbial Communities

DAVID HAAF

Does Groundwater Pumping Solve the Arsenic Problem or Make It Worse?

SESSION III



Evoking the vigilant 100 eyes of the guard Argus Panoptes, this session focuses on cutting-edge monitoring techniques used to understand the cryptic messages of nature, from the secrets held in environmental DNA to the subtle signs of seismic activities influencing water quality.

ARGUS PANOPTES' WATCH: MONITORING THE NATURAL REALM

ANISH KIRTANE

Myth Busters: Shattering Common Myths About Environmental DNA (eDNA).

SÉBASTIEN GIROUD

Measuring Gas Bubbles in an Alpine Spa Anyone Can Do It.

JOHANNES SCHORR

Tracing Pesticide Dynamics: High Resolution Offers New Insights to Karst Groundwater Quality.

SESSION IV



Reflecting the heroic labours of Hercules, this session highlights the ambitious efforts and innovative solutions employed to confront and overcome pressing environmental challenges, showcasing the strength and resilience of scientific inquiry in the face of adversity.

HERCULES' LABOURS: TACKLING ENVIRONMENTAL CHALLENGES

JENNY MANER

Chemical Toxicity and Water Monitoring with a Fish Cell-Based Microfluidic Biosensor.

ALI KIZGIN

On-Field Application of Biological Early Warning Systems Linked to High-Resolution Online-Chemical Monitoring.

GRÉGOIRE SABORET

Stable Isotopes of Eye Lens Track Dietary Shifts in Fish.

APOLLO'S INTERLUDE

Apollo, God of Sun and Light, with the sun symbolizing light, clarity, healing and rationality. As the sun illuminates the world, revealing truth and banishing darkness, Apollo was believed to provide the same clarity and insight through prophecy and the arts. The sun's daily journey across the sky made it a symbol of order and predictability, reflecting Apollo's role as a god of harmony and balance. His solar attributes emphasize the intellectual and civilized aspects of life, promoting growth, health, and purification.



- ⚙ **α0** **THIERRY MARTI**
The xenobiotic biotransformations of the urinary microbiota: is paracetamol on the menu?
- ⚙ **α1** **CORINA MEYER**
Human and Environmental Exposure by Synthetic Antioxidants: Insights from Wastewater.
- ⚙ **α2** **DUNCAN DALE**
Using 129 I and 236 U to trace ocean circulation around Iceland.
- ⚙ **α3** **NORA BERNET**
Advances in Oxygen Isotope Analysis of Phosphate by Electrospray Orbitrap Mass Spectrometry.
- ⚙ **α4** **GATWA TSHINSELE-VAN BELLINGEN**
Trading with a zombie: Non-growing bacteria can metabolically interact with and support the growth of others.
- ⚙ **α5** **LUIS MAURICIO ORTIZ GALVEZ**
Prospective environmental assessment of advanced nanomaterials.
- ⚙ **α6** **STELLA BĒRZIŅA**
Mesoscale ocean eddy characteristics in a high-resolution coupled climate model simulation.
- ⚙ **α7** **SILVAN ARN**
Quantification of hyphae on poly-3-hydroxybutyrate-co-3-hydroxyhexanoate films imaged by scanning electron microscopy.
- ⚙ **α8** **JESSICA BERTOLI**
Developing fish cell-based model for neurotoxicity testing.
- ⚙ **α9** **FLORA WILLE**
Biodegradable Mulch Films in Agricultural Soils: The Effect of Temperature on Biodegradation.
- ⚙ **α10** **YIWEN ZHANG**
Using a Material Flow Analysis Approach to Capture Plastic and Additive Flows.
- ⚙ **α11** **XUEJIAN WANG**
Seasonal patterns of metabolites as indicators for cyanobacteria and their biotransformation in surface waters.
- ⚙ **α12** **DANYANG JIANG**
Advancing plastic release modeling: from Switzerland to Europe.
- ⚙ **α13** **RACHEL LONDON**
Alignment of Analysis of Chemical Alternatives Methods with Current EU Regulation.

ARTEMIS' INTERLUDE

Artemis, Goddess of the Moon, complements her brother's solar aspects, representing the mysteries of the night, wilderness, and the untamed aspects of nature. The moon's phases symbolize change, transition, and the cyclical nature of life, mirroring Artemis's roles as a protector of childbirth and young women. The moon's association with hunting and the night also aligns with Artemis's dominion over the hunt and her role as a guardian of the wild. Her lunar attributes emphasize the intuitive, instinctual, and mysterious sides of existence.



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Diatoms as Indicators for pesticides Pollution in the Swiss Watercourses.
- © $\beta 1$ **SOFIA AMBROGETTI**
Bridging the Gap Between Laboratory and Environmental Photochemistry.
- © $\beta 2$ **GEREMIA PELLEGGRI**
The role of thiols on trace metals phytoavailability in agricultural soils.
- © $\beta 3$ **ANNABEL PAYNE**
Circulation timescales and pathways of Atlantic Waters in the Arctic Canada Basin using novel tracers Iodine-129 and Uranium-236.
- © $\beta 4$ **MIHAI-OVIDIU DEGERATU**
Proteomics profiling of three rainbow trout cell lines reveal distinct protein signatures.
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Uptake of Per- and Polyfluoroalkyl Substances from Soil into Plants – A Meta-Analysis.
- © $\beta 6$ **JULIANA OLIVEIRA**
Diversity of cyanobacteria and their toxins in Alpine Tintenstrich communities and their role in local food-webs.
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Tracking of extremes in ocean eddy-resolving climate models.
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Expanding the proteome allocation framework from clonal populations to multi-species communities.
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Towards understanding microbial eco-evolutionary dynamics of aerobic granular sludge.
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Chromophoric Dissolved Organic Matter (CDOM): Heroic Defender of Aniline-Contaminated Waterways.
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The Role of Organic Matter and Soil Minerals in Mercury Accumulation.
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Reactions of N,O- and N,S-azoles with ozone: kinetics and mechanisms.