



ICBM – Alumni News #18

Carl von Ossietzky
Universität
Oldenburg

Newsletter –

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Issue 18, year 7

Welcome to the eighteenth ICBM-Alumni-Newsletter

Dear ICBM-Alumni,

with our latest ICBM Alumni Newsletter we would like to continue to stay in touch with you and give a brief overview of what has been happening at ICBM over the last three months.

Among other things, in the eighteenth issue of our newsletter we report on an important group of environmental bacteria, the inaugural visit of the Minister of Science, and the combination of art and science.

We wish you a great start into spring.

Greetings and all the best,

Ferdinand Esser und Tabea Hildebrand

Topics of this issue

Science

- Metabolic model based on bacterial strain

Outside the box

- Inaugural visit of minister of science
- Painting made out of plastic
- Photo and Art Exhibition

Congratulations

- Oliver Zielinski is changing to the IOW

Obituary

- Thomas Höpner
- Horst Milde

SCIENCE AT THE ICBM

Screening of a bacterium

A team led by microbiologist Prof. Dr. Ralf Rabus and his doctoral student Patrick Becker from the University of Oldenburg has gained a deep insight into the cellular machinery of a widespread environmental bacterium. The researchers examined the entire metabolism of the bacterial strain *Aromatoleum aromaticum* EbN1T. On this basis, they then developed a metabolic model that can be used to calculate the growth of the microbes under different environmental conditions. As the researchers report in the journal *mSystems*, their analysis revealed some unexpected mechanisms that apparently allow the bacteria to cope with rapidly changing environmental conditions. On the one hand, the results are important for ecosystem research, where the *Aromatoleum* strain, as a representative of an important group of environmental bacteria, may serve as a model organism in the future. On the other hand, the results could also be interesting for the remediation of contaminated sites and for biotechnological applications. [...]

Through the interaction of the different methods, the team uncovered unexpected mechanisms within the metabolism: To the surprise of the researchers, it turned out that the microbes partly produce enzymes that they cannot use at all under the given growth conditions - at first glance a superfluous expenditure of energy. "Usually, the bacterial cells sense whether oxygen is present in the environment, for example, and



Patrick Becker [Photo: UOL]

only activate the nutrient-specific metabolic pathway with the associated enzymes via the corresponding genes," explains Rabus. In some samples, however, the microbes produced all the enzymes for the aerobic and anaerobic degradation pathways, regardless of the oxygen content - even though some of them were not needed at all. Rabus suspects that this apparent waste is a strategy of the microbes to survive in an unstable environment: "Even if the oxygen content fluctuates for a short time - which is often the case in the natural habitat - *Aromatoleum* remains flexible, can utilize this nutrient and in any case gain energy," says the microbiologist. A comparable mechanism is not yet known for other bacteria, he said. [\[PR 020/23 – 16.01.2023\]](#)

Original publication: *Patrick Becker, Sarah Kirstein, Daniel Wünsch et al.: „Systems Biology of Aromatic Compound Catabolism in Facultative Anaerobic Aromatoleum aromaticum EbN1T“, mSystems, Bd. 7, Nr. 6, 20. Dezember 2022. DOI: doi.org/10.1128/msystems.00685-22*

OUTSIDE THE BOX

Inaugural visit of the Minister of Science

"Strong in research, teaching and transfer, successful as a founding university and with a special anchoring in the region" - this is how the new Minister of Science Falko Mohrs described the University of Oldenburg on the occasion of his inaugural visit at the weekend. The Minister added that he had been able to see for himself "how well

the University of Oldenburg is positioned" in talks with the Executive Board, for example, and was very pleased to gain direct insights into two of the numerous outstanding fields of research. Following an exchange with the presidium, Mohrs visited both the Haarentor campus and the Wechloy campus, which is dominated by the natural sciences and medicine. [...]

How can climate and currents be reconstructed on the basis of the seafloor, and how can the finest traces of various elements be detected in seawater in a so-called clean room laboratory? Mohrs gained theoretical and practical insights into this at the ICBM. ICBM Director Prof. Dr. Heinz Wilkes welcomed the minister with a brief overview of the institute's focus on marine and environmental research, before geochemist Prof. Dr. Katharina Pahnke used a sediment core as an example to illustrate climate reconstruction. For Mohrs, this also included a close look at a sample through the microscope - as well as a flying visit to the completely dust- and metal-free cleanroom laboratory of Pahnke's "Marine Isotope Geochemistry" working group, including special protective clothing. [\[ICBM – 27.02.2023\]](#)

Terribly beautiful

It is a beautiful, lush underwater world that Karin Bison-Unger has depicted in her painting: Against a deep blue background, large corals, delicate crinoids and delicate algae form a colorful community of life that seems to float in the water. Fine air bubbles rise above it. Only a second glance reveals that the picture by no means



Heinz Wilkes informed Falko Mohrs about current ICBM topics in research and teaching
[Photo: Markus Hibbeler/UOL]

shows a paradise: The air bubbles are actually small plastic pellets, the supposed algae consist of the thin threads of a ghost net - that is, a fishing net lost in the sea - and the sandy bottom between the corals is actually a mixture of faded plastic fragments and old bottle caps. [...] The title "150 Million Tons - Fragile Underwater World" alludes to the total amount of plastic waste estimated to have already accumulated in the oceans. [...]

"My work is dedicated to the fragile underwater world in our oceans, which is worth protecting," reports Bison-Unger, an artist from Worpswede. She made the painting on commission from Dr. Shungudzemwoyo Garaba of the ICBM [...] "Artistic representation offers completely different ways of communicating to the public what we are researching," Garaba says. "A work of art helps people see a problem through new eyes." The researcher is a remote sensing expert who develops methods to detect plastic debris in the ocean using specific light signals, such as satellite data. He is also a scientific advisor to the Dutch foundation The Ocean Cleanup, which aims to rid the world's oceans of plastic. [...]

The work has now found its place in the new building of the Center for Marine Sensor Technology at the ICBM site in Wilhelmshaven. [...] [\[Campus-Leben – 21.02.2023\]](#)



„150 Millionen Tonnen – Fragile Unterwasserwelt“ [Image: KARIBU]

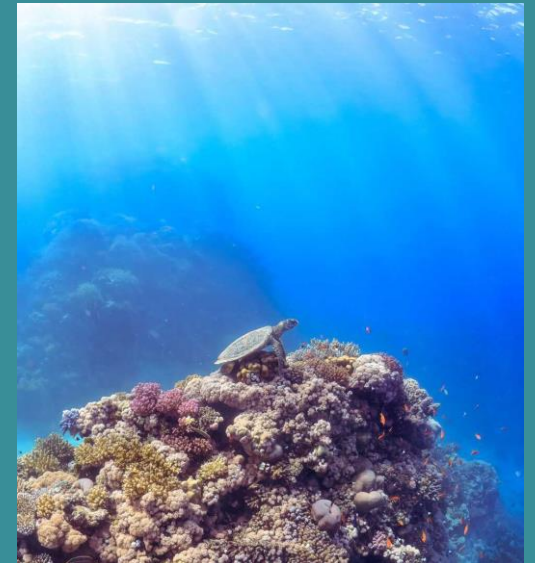
Discover the Colourful Biodiversity of the Oceans

Photo and Art exhibition from **April 14th 2023 to May 24th 2023**; location: **Schlaues Haus**, Schloßplatz 16, 26122 Oldenburg

The exhibition shows how tropical reefs are structured and highlights the diversity of the large and small reef inhabitants with exciting and entertaining facts. A highlight of the exhibition is the habitats in the local North Sea, which are characterized by an often unknown and enchanting beauty and biodiversity. Visitors also gain insight into the research and field work of marine scientists around the world who are studying the effects of environmental change on the biodiversity of our oceans.

More than 25 researchers are contributing photography and art pieces to this exhibition to inspire visitors and instill Passion of our oceans and their inhabitants.

Anna Roik, Stephanie Helber und Julia Strahl are marine biologists at the Helmholtz Institute for Functional Marine Biodiversity and the Institute for Chemistry and Biology of the Sea at the Carl von Ossietzky University Oldenburg and have put together this exhibition. Get to know them at the **Vernissage on April 14th 2023 at 1 pm in Schlaues Haus!** [\[HIFMB\]](#)



One photo of the exhibition [Photo: Nils Raedecker]

CONGRATULATIONS!

Marine physicist Oliver Zielinski moves to Warnemünde

Prof. Dr. Oliver Zielinski has been the new director of the Leibniz Institute for Baltic Sea Research Warnemünde (IOW) since March 1.

Zielinski, who had been teaching and conducting research at the University of Oldenburg since 2011, headed the "Marine Sensor System" working group at ICBM. [...] His research area includes environmental physics of aquatic ecosystems with a focus on the use of smart technologies, especially in the field of autonomous sensor systems and marine observatories. [...] In 2017, he took over as Scientific Director of the newly established Center for Marine Sensor Systems (ZfMarS) at the Wilhelmshaven site of the ICBM. [...] In addition, Zielinski headed the research area "Marine Perception" at the German Research Center for Artificial Intelligence (DFKI) since 2019 and the competence center "Artificial Intelligence (AI) for Environment and Sustainability" since 2020.

We congratulate him on his new position as director of the IOW and wish him much success and personally all the best. [\[PR 051/23 – 28.02.2023\]](#)



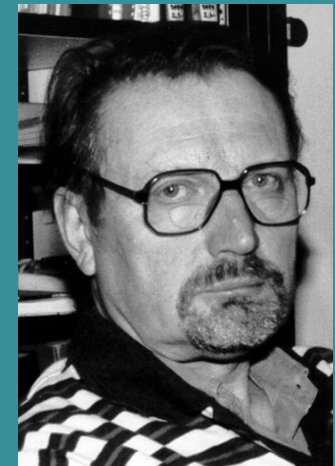
Prof. Dr. Oliver Zielinski [Photo: Markus Hibbeler/UOL]

OBITUARY

Biochemist Thomas Höpner deceased

Biochemist and co-founder of the ICBM Prof. Dr. Thomas Höpner passed away on January 25th at the age of 86. Höpner was a lecturer at the University of Oldenburg from 1974 until his retirement in 2001 and was one of the university lecturers of the first hour. In 2003, he received the Federal Cross of Merit for his extraordinary commitment to environmental protection and to cooperation between universities and trade unions. [...]

In his research, the biochemist dealt with the regeneration of ecosystems. In particular, he researched the biological, chemical and geological processes in the sediments of the Wadden Sea. He was particularly interested in the processes that contribute to the natural degradation of petroleum compounds after a tanker accident. In the joint project "Ecosystem Research in the Wadden Sea of Lower Saxony," which he co-initiated in the 1990s, he made a significant contribution to clarifying the origin of the so-called "black spots" that had temporarily become widespread in the Wadden Sea. In a long-term study, Höpner also investigated the ecological condition of the Saudi Arabian coast in the Persian Gulf. During the Second Gulf War in 1991, one of the most severe oil disasters to date for the marine environment had occurred there. [...] [\[PR 024/23 – 31.01.2023\]](#)

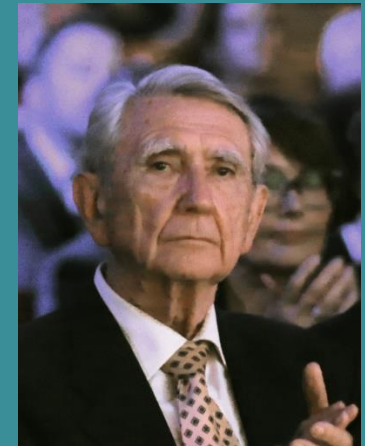


Prof. Dr. Thomas Höpner [Photo: UOL]

University mourns the death of its honorary citizen Horst Milde

The University mourns the death of its honorary citizen Horst Milde, President of the Lower Saxony State Parliament a. D. and former mayor of the city of Oldenburg. Milde died March 29th at the age of 89 shortly before his 90th birthday. "With Horst Milde, we are losing a special person and outstanding supporter, who was characterized by a deep attachment to our university until his death," said University President Prof. Dr. Ralph Bruder. As Lord Mayor, Milde had made the then still young university a top priority in the city's politics when this was not yet popular. He had done extraordinary things for the development of the university, for example by persistently supporting the establishment of the ICBM and the foundation of the OFFIS computer science institute.

For his great services, the university awarded Milde the title of "Honorary Citizen of Carl von Ossietzky University Oldenburg" in 1996. Along with Carl von Ossietzky's daughter, Rosalinde von Ossietzky-Palm, the trade unionist Erwin Fritzsche and the politician and publisher Fritz Heine, Milde was thus one of only four personalities whom the university has named an honorary citizen since its founding. [\[PR 078/23 – 30.03.2023\]](#)



Horst Milde [Photo: UOL]

If you have comments:

Please contact us if you have questions or further suggestions:
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Imprint

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