

Colloquium Series in Analytical Chemistry and Water Chemistry

Summer semester 2025

Invitation to the TUM IWC Lecture

The role of plastics in plant agriculture: from benefits and risks to plastic additives in food

Prof. Dr. Thilo Hofmann

Zentrum für Mikrobiologie und Umweltsystemwissenschaft, Department für
Umweltgeowissenschaften, University of Vienna, Austria

Monday, 28th of April 2025, at 12:30 pm
Building CH-6 Seminar room 36220, Department of Chemistry,
Lichtenbergstrasse 4, 85748 Garching

Topic: TUM IWC colloquium WiSe 2024/25

Join the Zoom meeting

<https://tum-conf.zoom-x.de/j/63630900077?pwd=Nlo1gtkeelCvC5CrqO0Q7xYwI3SK2J.1>

Meeting ID: 636 3090 0077

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Abstract:

Car tires consist of a complex mixture of materials that improve their performance and durability. These include 5-15% chemical additives, which comprise hundreds of substances, for example antioxidants, antiozonants, vulcanizing agents, anti-aging agents and many more, to enable the high-tech performance of a modern tire. The compounds leached from car tires find their way into agriculture through atmospheric deposition, irrigation with treated wastewater and the use of sewage sludge as fertilizer. There they can be taken up by plants and thus also reach humans. Similarly, the presence of drug residues in commercially sold fruit and vegetables has already been scientifically investigated many times. However, chemical substances from tire wear also find their way into the food chain. We have detected these chemical residues in leafy vegetables. Although the concentrations were low, the evidence was clear, a finding that is also known for drug residues in plant-based foods. Some of these substances and their transformation products can potentially pose ecological and toxicological risks.

About Thilo Hofmann:

Thilo Hofmann earned his Ph.D. in aquatic geochemistry from the University of Bremen in 1998 and continued as Assistant Professor at the University of Mainz. In 2005, he joined the University of Vienna, where he has since held the position of Full Professor and Chair of Environmental Geosciences. Prof. Hofmann has played a significant role in shaping the Faculty of Earth Sciences, Geography, and Astronomy at the University of Vienna, serving as Vice Dean from 2006 to 2012, and as Dean from 2012 to 2016. In 2014, he founded the University of Vienna's Environmental Research Network, now the "Environment and Climate Research Hub", where he serves as Director. This interdisciplinary network brings scientists from diverse fields, including natural sciences, social sciences, humanities, law, and economics, all working collaboratively to address pressing environmental challenges. Prof. Hofmann's research focuses on pollutants of emerging concern. His scholarly contributions include more than 200 peer-reviewed publications, and his work has earned him recognition from institutions such as the German Academic Scholarship Foundation, the German Water Chemistry Society, and Berlin Technical University. In addition to his role at the University of Vienna, Prof. Hofmann holds adjunct positions internationally. Since 2017, he has been Adjunct Full Professor at Duke University in the United States, and in 2018, he was honored as a Guest Professor at Nankai University in Tianjin, China.