EINLADUNG

**Kolloquium
Wintersemerster 2021 / 2022**

Prof. Dr. Markus Brinkmann

University of Saskatchewan,
School of Environment and Sustainability

hält am Dienstag, den **26.10.2021**, um 16:15 Uhr, digital via Zoom, einen Vortrag über

„Predictive toxicology approaches for extrapolation of chemical risks across species, life stages, and scales"

Chemical regulators in the 21st century are faced with the challenge of assessing the environmental and human health risks of an ever-growing and increasingly diverse chemical space. At the same time, our environment experiences an unprecedented rate of transformation due to global changes in climate and land use, and biodiversity loss. Current regulations for assessing the toxicological risks of chemicals rely extensively on live-animal testing using a few model species under controlled laboratory conditions. It is well-established now that these approaches are not always adequately protective of organisms of concern, such as native species. However, the huge costs and ethical objections with regard to animal testing prevent us from testing each chemical in each species under various environmental conditions. Consequently, powerful predictive toxicology approaches are sorely needed to bridge these gaps and allow for confident extrapolation beyond the range of measured data. Here, I will present four selected examples of predictive toxicology tools developed or applied in my research group that aim to bring chemical risk assessment into the 21st century: (1) cross-species extrapolation of uptake and toxicological effects of chemicals; (2) in vitro-in vivo extrapolation of chemical biotransformation and effects; (3) using fish early-life stages in mechanistic toxicology research; and (4) using physiologically-based toxicokinetic models to account for the impacts of global environmental change. Already today, this research is closely followed and perceived as highly promising by academics, industry, and government agencies alike. Successful implementation of these and similar approaches in chemical risk assessment would represent a major leap towards more sustainable, efficient, and unbiased assessments of the safety of the large number of chemicals in use today and in the future, and may potentially save billions of dollars and millions of animals.

Einladender: Prof. Dr. Henner Hollert

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