

# Seminar@IWG-WB

in collaboration with International Excellence Grants Program

24. November 2023

11:30-13:00 Uhr

KIT, Geb. 10.81, Raum 305

oder online:

<https://kit-lecture.zoom-x.de/j/69354624935>

## Associate Professor Stefan Felder

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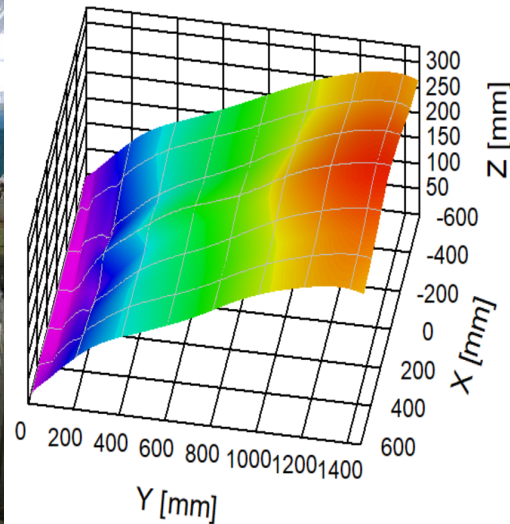
**New measurement methods to improve design and safety of  
hydraulic structures**



# New measurement methods to improve design and safety of hydraulic structures

## Abstract

Hydraulic structures, such as dams fulfill many societal functions including water supply, flood mitigation and generation of hydropower. Their safety is paramount and a failure can be catastrophic. The design of hydraulic structures must therefore be conducted with the highest technical standards using state-of-the-art measurement approaches. Despite their significance, current design practice for flood release and energy dissipation facilities is limited to small scale physical modeling combined with numerical modelling while significant limitations exist due to scale effects and missing prototype validation data. In recent years, some new advances have been made in the use of instrumentation and post-processing methods that can provide more confidence in the design of hydraulic structures and that may change the way we design structures in the future. Herein, this talk provides an overview about recent developments in the instrumentation relevant for hydraulic structures including phase-detection intrusive probes, remote sensing with LIDAR and camera technology as well as lagrangian-type sensors for fish safety assessment.



## Biography

Stefan Felder is an Associate Professor at UNSW Sydney, Australia. He holds a Dipl.-Ing. from RWTH Aachen University, Germany (2008) and a PhD from the University of Queensland, Australia (2013). He joined UNSW in 2014 as an academic establishing the hydraulic engineering research group at the Water Research Laboratory (WRL). He was recently appointed Deputy Director of WRL.

He is an expert in hydraulic engineering and applied fluid mechanics with internationally recognised research in air-water flows, hydraulic structures engineering and fish passage.

He is active in relevant committees of Engineers Australia and the International Association for Hydro-Environment Engineering and Research (IAHR), including as Chair of the IAHR Hydraulic Structures Technical Committee.

He is currently visiting IWG as a KIT International Excellence Fellow.