OPEN SCIENCE TALK

Tuesday
16 SEPT 2025

KLEVE-HYBRID | 16:00-18:00

media competence HUB

PRO4-HSRW FH Personal

HOCHSCHULE RHEIN-WAAL
Rhine-Waal University of Applied Sciences

Event Programme

16:00
Opening Remarks
Prof. Dr. Habil. Tatiana Zimenkova
Vice-President for Internationalisation and Diversity

Open Science Talk
Where Science Meets Culture!
Dr. Maryam Bolouri, Science Communication

16:15
Special Guest – Event Kick-off
Prof. Dr. Mona Wappler
Unternehmenslogistik

16:30
Part I: Science TalkSustainable
Location Selection ToolJennifer Gnyp, Projekt „StaR"

17:00
Part II: Science Walk
Poster Presentations

17:30
Workshop: Science on Screen
From Posters to Science Videos
Dr. Maryam Bolouri
Science Communication

18:00
Closing Remarks and Feedback

Media Competence Hub
Dr. Maryam Bolouri
mchub@hsrw.eu

Welcome Note

Open Science Talk

Where Science Meets Culture!

Welcome to the *Open Science Talk* — a space where research meets culture, and ideas come to life in the public sphere, leaving footprint in medial world.

We embark on a journey from the research field to cultural dialogue. Early-career researchers — whose passion, resilience, and creative perspectives are vital to the future of science and the humanities — present their ongoing projects and share their personal experiences as researchers in an engaging and vivid manner.

The aim of *Open Science Talk* is to promote knowledge communication that is accessible, participatory, and inclusive. It is a platform where ideas are not only shared, but also sparked, challenged, and refined.

Let curiosity lead and creativity follow as we set out on this colourful journey together!

Dr. Maryam Bolouri

Science Talk

Sustainable Location Selection Tool

The selection of locations for production facilities has long been dominated by economic considerations such as labor costs, infrastructure, and market access.

Today, however, sustainability plays an increasingly important role: ecological and social aspects are added to the economic dimension, often framed within the triple bottom line of sustainable development. Yet in practice, these factors are still considered only selectively rather than in a holistic and strategic way.

This project aims to address this gap by developing a decision-support tool that systematically combines sustainability criteria with strategic business perspectives. The Analytic Hierarchy Process (AHP) serves as the methodological foundation, as it allows for the structured integration of both quantitative indicators (e.g., costs, energy use, emissions) and qualitative judgments (e.g., preferences, strategic priorities).

Sustainability dimensions are operationalized through open-access data and mapped to proxy variables to ensure transparency and comparability.The work progresses in several steps: identifying and justifying criteria, implementing the AHP model with scaling and consistency checks, and establishing a robust data basis.

continued

Science Talk

This framework will be applied to the hydrogen industry, where the location of electrolyser production facilities depends not only on general economic and ecological considerations but also on sector-specific factors such as renewable energy availability, industrial clustering, and policy incentives.

Building on this, a prototype web application will be created that enables pairwise comparisons, visualizes rankings, and highlights trade-offs between economic, ecological, social, and strategic factors.The outcome is intended as an open-source, user-friendly tool that supports companies and policymakers in making transparent, sustainability-oriented location decisions. In doing so, the project not only contributes to the academic debate but also provides a practical instrument for real-world applications.

Jennifer Gnyp

My name is Jennifer Gnyp, I am a research assistant at Rhine-Waal University of Applied Sciences (HSRW). I studied Information Science and Language Technology at HHU Düsseldorf, with a focus on Natural Language Processing, Machine Learning and Open Data. In my work at HSRW, I focus on the development of data-driven solutions: In the „DataSustain“ project, I was involved in the development of an interdisciplinary data science lab on open data and sustainability. In my current project „H2Giga: StaR“, I am developing an analysis tool that supports sustainable decisions by SMEs through transparent indicators and data analysis.

Science Poster

Intersectional Diversity Management

This poster presents a solution to the shortage of skilled workers in the Lower Rhine region of Germany. Many young professionals are leaving the area, seeking more opportunities and diverse environments in bigger cities. The research argues that existing diversity management practices, often from the U.S., aren't effective for small, rural German companies.

In my project, I advocate for an intersectional diversity management approach. This is crucial because young people and migrants are often excluded from rural societies that prioritize traditional values. The goal is to create a tolerant climate and a productive atmosphere that encourages a more diverse workforce to stay in the region.

The research uses interviews and critical theories like Queer Theory and Feminist Theory to challenge power dynamics and foster meaningful change.

Luisa Emelie Baumgart

Luisa Emelie Baumgart is a scientific researcher and PhD candidate at HSRW, researching societal transformations within the Project TransRegINT. Her work focuses on the intersectional transformation of equal opportunity and diversity management practices in small and medium-sized companies and non-profit organizations in the Lower Rhine region. She holds a Master's degree in Sociology from University College Dublin and a Bachelor's degree in Gender and Diversity from HSRW.

Science Poster

Hydrogen Economy

Key Developments in China, Europe, and the USA

Dilek Üngüder, Anne-Charlotte Krutoff, Mona Wappler

The advancement of the clean hydrogen economy represents a pivotal component in global efforts to mitigate greenhouse gas emissions. Our study offers a comprehensive examination of market developments across three leading regions in the hydrogen sector: China, Europe, and the United States.

Drawing on an analysis of regulatory frameworks, policy drivers, production capacities, and announced projects and investments, the findings reveal significant regional disparities. In China, coordinated regulatory measures and targeted financial incentives have substantially accelerated hydrogen market development.

By contrast, persistent regulatory uncertainties in Europe and the United States continue to hinder investment decisions and complicate the realization of large-scale projects.

Dilek Üngüder

Anne-Charlotte Krutoff

Dilek Üngüder is a researcher at Hochschule Rhein-Waal University of Applied Sciences, working on the StaR-Project with a focus on supply chain design. She holds a bachelor's degree in Mobility and Logistics from Hochschule Rhein-Waal and is currently pursuing a master's degree in Information Engineering and Computer Science at the same university. Her research interests include inventory optimization, supplier management, and supply risk management, with the aim of developing decision-oriented models for resilient and efficient supply chains.

Anne-Charlotte Krutoff is a researcher at Hochschule Rhein-Waal University of Applied Sciences, working on the StaR-Project. Her research focuses on the development of the green hydrogen economy, with a particular focus on cost structures and pathways to economic competitiveness. She holds a Diploma in Business Administration from the University of Passau

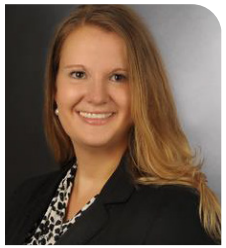
Science Poster

Requirements for Electrolysis Systems

This research presents a systematic approach to aligning technical product attributes of electrolyzers with customer requirements in the context of cost-efficient hydrogen production. In a pre-study, five semi-structured expert interviews were conducted to identify customer needs, which were then categorized and prioritized using the Kano model. Quality Function Deployment (QFD) was subsequently applied to evaluate the relative importance of system components in fulfilling these requirements.

Findings reveal that seemingly minor elements – such as valves, seals, and fluid connectors – can have a disproportionately high impact on customer satisfaction, while core functional parts are often perceived as baseline expectations. To validate these qualitative insights, a follow-up quantitative study is proposed, enabling a more robust assessment of requirement–attribute relationships.

The results of this quantitative study will further serve as a basis for systematic target cost splitting across components, thereby strengthening the link between customer value, technical design, and cost efficiency. The approach offers valuable insights for design optimization and supports informed decision-making in the early stages of electrolyzer development.



Rebecca Rasche

I am a doctoral candidate at TU Dortmund University and a research associate at Rhine-Waal University of Applied Sciences, focusing on the economics of the hydrogen economy. My PhD research examines the costs and requirements of water electrolysis systems, production optimization, and hydrogen supply chain controlling. Alongside my research, I supervise students and contribute to project management within the BMFTR-funded H2Giga project, investigating cost effects in scaling hydrogen technologies. With a background in industrial engineering and management from FH Südwestfalen (B.Sc.) and RWTH Aachen University (B.Sc. + M.Sc.), I apply my expertise in supply chains, production, and project management to sustainable energy systems.