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**PROGRAM SCHEDULE &
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Program
Schedule



Compilation
of Abstracts


RD SME BOARD MEMBERS
FACULTY OF GEOSCIENCES, RUB

Prof. Dr. Jörg Renner (Speaker)

Geology, Mineralogy and Geophysics

Prof. Dr. Wolfgang Friederich

Geology, Mineralogy and Geophysics

FACULTY OF CIVIL AND ENVIRONMENTAL ENGINEERING, RUB

Dr.-Ing. Wiebke Baille

Soil Mechanics, Foundation Engineering & Environmental Geotechnics

Prof. Dr.-Ing. Markus Thewes (Deputy Speaker)

Tunnelling and Construction Management

Prof. Dr.-Ing. habil. Torsten Wichtmann

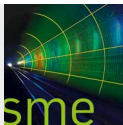
Soil Mechanics, Foundation Engineering & Environmental Geotechnics

BOCHUM UNIVERSITY OF APPLIED SCIENCES

Prof. Dr. Erik H. Saenger

Chair of Reservoir Engineering and Petrophysics

**Research Department
Subsurface Modeling and Engineering**
Science Manager: Dr. Victoria Jiménez



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**F
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2023**

**From Underground to Surface:
Energy provision and Distribution**

November 30th 2023
Veranstaltungszentrum – Saal 3



RESEARCH DEPARTMENT
Subsurface Modeling
and Engineering





FROM UNDERGROUND TO SURFACE ENERGY PROVISION AND DISTRIBUTION

On Thursday, **November 30th 2023**, the first **FUSED ,From Underground to Surface: Energy provision and Distribution'**, organized by the Research Department ,Subsurface Engineering and Modeling', will take place. It is hosted at Ruhr-Universität Bochum and begins at **9 AM** at **Saal 3** of **Veranstaltungszentrum**.

In the spirit of its predecessor CRUST, the workshop intend to bring together master students, PhD-students, and young post-docs. We would like to foster trans-institutional interaction and therefore open this event to all young energy-scientists of the Ruhr area: our motto is „connect and interact"! Therefore, please, feel included wherever your specific research topic locates in the triangle „subsurface - energy - distribution".

Participation is free. Please register via our website: rdsme.rub.de.



PROGRAM NOVEMBER 30TH 2023, 9:00 - 18:00 RUB, VERANSTALTUNGSZENTRUM, ROOM 3

9:00 *Welcoming*

9:15 Keynote: **Development of the Bochum Dannenbaum mine for heating and cooling: drilling and pumping tests**
DIMITRA TEZA Frauenhofer IEG

Geological records relevant for geothermal systems

9:45 **Giant carbonate veins as traces of hydrothermal fluid pathways in exhumed analogues of geothermal reservoir**
LUCA SMERAGLIA Consiglio Nazionale delle Ricerche

10:00 **Amethyst-agate geodes deposit from Uruguay: insights from one-phase fluid inclusions and stable isotopes**
FIORELLA ARDUIN RODE Georg-August-Universität Göttingen

10:15 **Thermochronology and geothermal systems: from nuisance to exploration tool and the challenges to overcome**
MATHIAS HUECK Ruhr-Universität Bochum

10:30 *Coffee Break*

Advancements in Subsurface Engineering

11:00 **Getting the big picture right: tunnel lining safety prediction based on measurements deploying an AI-FEM-based concept**
NICOLA GOTTARDI Ruhr-Universität Bochum

11:15 **A Deeponet Approach for the Fusion of Simulations and Monitoring to Predict Settlement Field in Mechanized Tunneling**
CHEN XU Ruhr-Universität Bochum

11:30 **Water-assisted cracking in Anröchter sandstone**
EVANGELOS KORKOLIS Ruhr-Universität Bochum

11:45 **Experimental investigation of coupled thermo-hydro-mechanical behaviour of Kaolin**

TIMON KAYSER Ruhr-Universität Bochum

12:00 *Lunch*

13:00 Keynote: **Geothermal energy – ambitions & realization**

BORIS DOMBROWSKI DMT GmbH & Co. KG

Hazard Mitigation in Geothermal Operations

13:30 **Statistical approach to characterize stress field heterogeneity**

VICTORIA JIMÉNEZ Ruhr-Universität Bochum

13:45 **Fault roughness controls injection-induced seismicity**

LEI WANG Deutsches GeoForschungsZentrum

14:00 **From outcrops to lab experiments and modeling: a multi-disciplinary, multiscale approach to mitigate seismic hazard in deep geothermal energy applications**

ALESSANDRO VERDECCHIA Ruhr-Universität Bochum

Poster Presentations

SIEGFRIED – A New Interdisciplinary Project for Seismic Hazard Assessment to Accelerate the Geothermal Transition in the Lower Rhine Embayment

ALESSANDRO VERDECCHIA Ruhr-Universität Bochum

Impact of thermal comfort driven building controls on the dimension of geothermal-heatpump-systems under consideration of different building type

14:15 TOBIAS WOLF Hochschule Bochum

Environmental and Economic parameter study of Air-Source and Ground-Source Heat Pump Systems for existing Buildings

15:15 SVEN QUIEHL Hochschule Bochum

Numerical simulation of geomechanical experiments on granite

HOSSEIN ASGHARI CHEHREH Ruhr-Universität Bochum

Evaluation of transparent coating on metal surfaces

MYO THIRI KYAW Technische Hochschule Georg Agricola

Energy Potential of the Shallow Subsurface

15:15 **Unlocking the Potential of Mine Waste in a Circular Economy: Innovative Tools, Challenges, and Opportunities**

HERNAN FLORES Technische Hochschule Georg Agricola

15:30 **A tailored model for sustainable control of ATEs systems with mixed-integer programming**

JOHANNES VAN RANDENBORGH TU Dortmund

15:45 **Two-well dipole test for aquifer characterization**

FAHIM MUMAND Ruhr-Universität Bochum

16:00 *Closing*

16:15 *Beer and Pretzels*