

# China-Europe Workshop on Geo-energies

July 29 – August 05, Vienna, Austria

# *Dear Colleagues,*

*Welcome to the **China-Europe Workshop on Geo-energies**. The world is likely to see tripling capacity of global renewable energy by 2030. To achieve the global goal of carbon neutrality, exploitation of green geo-energies and development of low-carbon technology for geo-energies are two-strategic paths. Both China and Europe are major global driving forces in promoting renewable energy. This workshop brings together researchers and practitioners from China and Europe to share their recent research advances in the geo-energies sector. We are proud to hold this event and wish you to have some good time in Vienna.*

*Chunhe Fang & Wei Wu  
Workshop Chairmen*

# General Information

## Workshop venue

The workshop will be held in the main building of our university, Gregor Mendel-Haus, Gregor Mendel-Strasse 33, 1180 Vienna, 3<sup>rd</sup> floor, Seminar room 32.



**Gregor Mendel-Haus**

## Registration Desk and Welcome Reception

The registration and information desk is located at the Institute of Geotechnical Engineering in Guttenberghaus, room EG/21, Feistmantelstrasse 4, 1180 Vienna.



**Guttenberghaus**

## Reaching the venue from Kaiser Franz Joseph hotel

The workshop venue can be conveniently reached on foot in about 20 minutes by following the route: immediately opposite to the entrance of Kaiser Franz Joseph hotel, walk along the Friedlgasse to the end of the street. Turn right and walk 350 m along Krottenbachstraße until you reach Hugo-Wolf-Park on your left hand. Walk straight uphill through the park, and continue straight on Dänenstraße/Feistmantelstraße until you reach the BOKU Campus.



## **BOKU River Lab visit on Friday morning**

The address of the River Lab is “Am Brigittenauer Sporn 3, 1200 Wien”. You may reach the River Lab from the BOKU campus with the Bus 10A to “Wien Gunoldstrasse” and continue with tram D to “Nußdorf”. Coming from Hotel Kaiser Franz Joseph, please take bus 39A to “Wien Gunoldstrasse” and continue with tram D to “Nußdorf”.



**BOKU River Lab**

## **Lunch and coffee breaks**

Lunch and refreshments will be served close to Seminar room 32, where workshop will be held.

## **Oral Presentation**

The speakers are kindly asked to copy your presentation slides to our Laptop at the Welcome Reception, 29th July, 2024.

## **Questions**

If you have any questions or require assistance, please come to the registration desk or contact us:

**Landline:** 0043 1 47654 87300




**Email:** [geotech@boku.ac.at](mailto:geotech@boku.ac.at)

**Website:** <http://geo-energy-vienna-2024.com/>

# China-Europe Workshop on Geo-energies

July 29 – August 05, 2024, Vienna, Austria

## Programme overview

29.07.2024 (Monday)	30.07.2024 (Tuesday)	31.07.2024 (Wednesday)	01.08.2024 (Thursday)	02.08.2024 ~ 05.08.2024
	8:45-9:00 Opening Ceremony	9:00-11:00 Technical Session		Technical excursion
	9:00-11:00 Keynote Session		10:00-12:00 Laboratory visit at BOKU River Lab	
	11:00-11:20 Coffee Break	11:00-11:20 Coffee Break		
	11:20-12:30 Technical Session	11:20-12:30 Technical Session		
	12:30-14:30 Lunch Break	12:30-14:30 Lunch Break	12:00-15:00 Lunch Break	
15:00-21:00 Registration	14:30-16:00 Technical Session	14:30-16:00 Technical Session	15:00-17:00 Open discussion & Laboratory visits at BOKU	
	16:00-16:20 Coffee Break	16:00-16:20 Coffee Break		
	16:20-18:00 Technical Session	16:20-18:00 Technical Session		
18:00-24:00 Welcome Reception	19:00-23:00 Conference Banquet			

# Social events

Admission to all social events, with the exception of the concert in the Golden Hall, is welcome for all participants. Concert tickets are for participants with full registration, but can also be purchased separately. Your name badge is required for entry to all events.



## 1. Welcome Reception in the garden of Guttenberghaus

Monday, 29.07 18:00-24:00 Address: Feistmantelstrasse 4, 1180 Vienna Public transport: bus station: Dänenstraße (40A/10A)

Get to know the workshop venue and meet the workshop participants, collect your registration package and enjoy the barbecue.

## 2. Conference Dinner at Heuriger 10er Marie

Tuesday, 30.07, 19:00-23:00

Address: Ottakringer Str. 222/224, 1160

Vienna Public transport: 10A bus station: Familienplatz.

Join us in a convivial atmosphere with workshop participants and organizers.



## 3. Concert at the Golden Hall Thursday, 01.08, 20:15-22:00 Address:

Musikvereinsplatz 1, 1010 Vienna Public transport: 1/71/D tram station: Schwarzenbergplatz; or U1/U4 subway station: Karlsplatz.

Meet the workshop participants and enjoy the classical music in the Golden Hall of the Musikverein, Vienna. We suggest you to arrive 20-30 minutes before the concert.

# Keynote Session

**July 30, 2024      08:45-12:30**

**Session chairman: Univ.Prof. Dr.Ing. Wei Wu (Vienna, Austria)**

**08:45-09:00      Opening Ceremony**

**09:00-09:50      Energy geostructures – Innovative technologies for the utilization of geo-energies**

*Prof. Dr. Dietmar Adam* (Technische Universität Wien, Austria)

**09:50-10:00      Q&A**

**10:00-10:50      Deep underground energy storage: opportunities and challenges**

*Prof. Dr. Chunhe Yang* (Institute of Rock and Soil Mechanics, Chinese Academy of Sciences, China)

**10:50-11:00      Q&A**

**11:00-11:20      Coffee break**

## Technical Session

**Session chairman: Priv.-Doz. Dr. Yunteng Wang (Vienna, Austria)**

**11:20-11:45      Geothermal Resources of Ukraine and Application of Phase Change Materials for Geothermal Energy Storage**

*Prof. Dr. Olena Ivanik* (National Taras Shevchenko University of Kyiv, Ukraine; Universite de Lorraine, CRPG, Vandoeuvre-les-Nancy, France), and Prof. Dr. Mykola Isaiev (Universite de Lorraine, CNRS, LEMTA, Nancy, France)

**11:45-11:50      Q&A**

**11:50-12:15      A chemo-mechanical theory of multiphase porous media**

*Prof. Dr. Changfu Wei* (Institute of Rock and Soil Mechanics, Chinese Academy of Sciences, China)

**12:15-12:20      Q&A**

**12:30-14:30      Lunch break**



# Technical Session

**July 30, 2024      14:30 -18:00**

**Session chairman: Dr. Xiaogang Guo (Vienna, Austria)**

**14:30-14:55      Remote hydraulic fracturing at weak interfaces**

Prof. Dr. Keita Yoshioka (University of Leoben, Austria)

**14:55-15:00      Q&A**

**15:00-15:25      Impact of Climate Change on Underground Tunnel Infrastructure  
(online)**

Prof. Dr. Zili Li (University College Cork, Ireland)

**15:25-15:30      Q&A**

**15:30-15:55      Feasibility of Liquid Nitrogen Fracturing Hot Dry Rock (HDR)**

Prof. Dr. Zhongwei Huang (China University of Petroleum – Beijing,  
China)

**15:55-16:00      Q&A**

**16:00-16:20      Coffee break**

**Session chairman: Prof. Dr. Dawei Hu (Wuhan, China)**

**16:20-16:45      Control theory and reinforcement learning for preventing induced  
seismicity and maximizing renewable energy production and  
storage (online)**

Prof. Dr. Ioannis Stefanou (Ecole Centrale de Nantes, France)

**16:45-16:50      Q&A**

**16:50-17:15      Geotechnical gravity energy storage systems (GGES): Concepts,  
energy and soil mechanic aspects**

Mr. Msc. Luis Mugele (Karlsruher Institut für Technologie, Germany)

**17:15-17:20      Q&A**

**17:20-17:45      The cracking initiation mechanism of supercritical carbon dioxide  
fracturing**

Prof. Dr. Haizhu Wang (China University of Petroleum – Beijing,  
China)

**17:45-17:50      Q&A**



# Technical Session

**July 31, 2024      09:00-12:30**

**Session chairman: Priv.-Doz. Dr. Yunteng Wang (Vienna, Austria)**

**09:00-09:25      Creep fatigue constitutive model of salt rock based on state variables**

Prof. Dr. Deyi Jiang (Chongqing University, China)

**09:25-09:30      Q&A**

**09:30-09:55      Model Test Study of the Dropping of Large-diameter Steel Pipe Piles in Offshore Wind Farm**

Prof. Dr. Guofang Xu (Institute of Rock and Soil Mechanics, Chinese Academy of Sciences, China)

**09:55-10:00      Q&A**

**10:00-10:25      Multistage Cavity Completion in Coalbed Methane Horizontal Wells**

Prof. Dr. Ruiyue Yang (China University of Petroleum – Beijing, China)

**10:25-10:30      Q&A**

**10:30-10:55      Large-scale physical simulation of injection and production of hot dry rock in Gonghe Basin, Qinghai Province, China**

Prof. Dr. Haiyan Zhu (Chengdu University of Technology, China)

**10:55-11:00      Q&A**

**11:00-11:20      Coffee break**

**Session chairman: Prof. Dr. Guofang Xu (Wuhan, China)**

**11:20-11:45      Micro-particle transport in rough natural fractures with supercritical CO<sub>2</sub>**

Prof. Dr. Bin Wang (China University of Petroleum – Beijing, China)

**11:45-11:50      Q&A**

# Technical Session

11:50-12:15	<b>Geothermal Potential of Groundwater in Tunnel Drainage System: A Case Study of Dublin Port Tunnel</b> <i>Dr. Tao Fan</i> (University College Cork, Ireland)
12:15-12:20	<b>Q&amp;A</b>
12:30-14:30	<b>Lunch break</b>

# Technical Session

**July 31, 2024      14:30 -18:00**

**Session chairman: Prof. Dr. Bin Wang (Beijing, China)**

**14:30-14:55      Feasibility analysis of the single well heat extraction from abandoned oil well**

*Prof. Dr. Jingbin Li* (China University of Petroleum – Beijing, China)

**14:55-15:00      Q&A**

**15:00-15:25      CO<sub>2</sub>-brine-sandstone interactions mechanism during CO<sub>2</sub> sequestration in deep brine aquifers**

*Dr. Fujian Yang* (Institute of Rock and Soil Mechanics, Chinese Academy of Sciences, China)

**15:25-15:30      Q&A**

**15:30-15:55      Experimental study of assembled foundation for clean energy transmission lines in wind-sand areas**

*Prof. Dr. Guanshi Liu* (Institute of Rock and Soil Mechanics, Chinese Academy of Sciences, China)

**15:55-16:00      Q&A**

**16:00-16:20      Coffee break**

**Session chairman: Prof. Dr.-Ing. Wei Wu (Vienna, Austria)**

**16:20-16:45      Stress redistribution around cross passages in shallow tunnels**

*Mr. Msc. Ahsan Saif* (BOKU University, Austria)

**16:45-16:50      Q&A**

**16:50-17:15      Advanced numerical methods for brittle fracture and strain localization in geomechanics**

*Priv.-Doz. Dr. Yunteng Wang* (BOKU University, Austria)

**17:15-17:20      Q&A**

**17:20-17:45      Experimental and numerical study of application CO<sub>2</sub> as heat extraction medium in HDR**

*Prof. Dr. Dawei Hu* (Institute of Rock and Soil Mechanics, Chinese Academy of Sciences, China)

**17: 45-17:50      Q&A**



















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*universität des lebens*