2019 ARMA-CUPB

GEOTHERMAL INTERNATIONAL CONFERENCE

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ARMA
american rock mechanics association

FROM HYDROTHERMAL TO ENHANCED GEOTHERMAL SYSTEMS

CONFERENCE PROGRAM

Aug. 5-7, 2019, Jiu Hua Hotel, **Beijing, China**

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Come and join us at the 2019 ARMA-CUPB Geothermal International Conference in Beijing

ONLINE REGISTRATION: www.arma-cupb.com

2019 ARMA-CUPB Geothermal International Conference Features:

- Short Course / Training and Registration
- Technology Highlights: Drilling and Completion, Enhanced Geothermal System, Hydraulic Fracturing, and Field Development
- Industry Perspectives: Experiments and Models, Case Studies, Reservoir Simulation and Engineering, CO_2 and Environment

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Introduction and Welcome

The Organizing Committee of the 2019 ARMA-CUPB International Conference cordially invites you to Beijing, China on Aug 5-8, 2019. The conference theme is "From conventional hydrothermal systems to enhanced geothermal energy: Technology Sharing with the Oil and Gas Industry". As the conference chairmen, we are honored to invite all of you to this exciting event, with the cordial hospitality and the warm welcome of Beijing.

As a continuation of popular ARMA conference series, we will entertain you with a strong technical program and memorable social activities provided by the host CUPB. The 2019 ARMA-CUPB International Conference will include keynote speeches, invited talks, oral presentations, and poster sessions. To promote the technical exchanges between geothermal and petroleum industries, a wide range of topics will be covered. They include

» Enhanced/Engineered Geothermal Systems
» Geology and Geophysics
» Drilling and Completion
» Hydraulic Fracturing
» Induced Seismicity
» Reservoir Simulation and Reservoir Engineering
» Case Studies
» Hydrothermal Systems
» Heat Pump
» Heat Storage
» Power Generation and Management
» Geothermal Project Management

Come and join us. We look forward to seeing you in Beijing.

Sincerely,

Drs. Gang Han, Xianzhi Song, Shu Jiang
Chair and Co-Chairs of the Organizing Committee
2019 ARMA-CUPB Geothermal International Conference

ARMA-CUPB Geothermal International Conference Committee

ADVISORY COMMITTEE

Chair: John McLennan – ARMA Fellow / U of Utah, Gensheng Li – CAE / VP of CUPB

Derek Elsworth – ARMA Fellow / US NAE / Penn State Univ.
Maurice Dusseault – ARMA Fellow / U of Waterloo
Jiyang Wang – CAS / CAS Institute of G & G
Ji Duo – CAE / Geological Survey of Tibet
Yaofeng Cao – CAE / Former VP of SINOPEC
Yongsheng Ma - CAE / President of SINOPEC
Yinao Su – CAE / CNPC Petro. Eng. Institute
Zhaoping Zhang – President of SINOPEC Star
Baoping Lu – President of SINOPEC Research Institute of PE
Qingyou Liu – President of Chengdu U of Technology

ORGANIZING COMMITTEE

Chair: Gang Han - ARMA Vice President / Aramco
Co-Chairs: Xianzhi Song - CUPB, Shu Jiang - U of Utah / China U of Geosciences (Wuhan)

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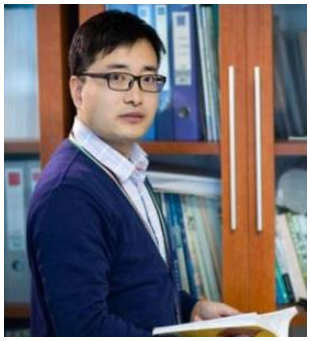
Peter Smeallie – ARMA Executive Director
Ahmad Ghassemi – ARMA TCHF / OU
Doug Blankenship – ARMA TCHF / Sandia
Branko Damjanac – ARMA TCHF / Itasca
Xiaodong Ma – ARMA FL / ETH Zürich
Christopher Pain – Imperial College London
Baoci Xu – U of Waterloo
Weiguo Liang – Taiyuan U of Technology
Zhonghe Pang – CAS Institute of G & G
Zhongwei Huang – CUPB
Mao Sheng – CUPB
Haiyan Zhu – Chengdu U of Technology
Jianchun Guo – Southwest Petro Univ.
Dongguang Wen – China Geological Survey
Jialing Zhu – Tianjin Univ.
Yangsheng Zhao – Taiyuan U of Technology
KeWen Li – CUG (Beijing) /Stanford Univ.
Guiling Wang – China Geological Survey
Dianbin Guo – SINOPEC Star
Ruixia Li – SINOPEC Star new Eng. Institute
Kaibin Qiu – Schlumberger
Xinming Niu – Sinopec Petro. Eng. Institute
Zhaofeng Zhang – CNPC Greatwall Drilling
Tianyi Lin – Beijing Geothermal Institute
Jian Tian – Huanhe Geo-energy Company
Peixue Jiang, Bisheng Wu – Tsinghua Univ.
Tianfu Xu – Jilin Univ.
Haizhu Wang, Yiqun Zhang– CUPB
Shifeng Xue – UPC
Wu Wei – Nanyang Technological Univ.
Jianjun Liu – CAS Institute of Rock & Soil
Yarlong Wang – Petro-Geotech

Organizing Committee Chair

Gang Han
Vice President, American Rock Mechanics Association
Founder and Chair, ARMA Hydraulic Fracturing Community

Dr. Gang Han is the Vice President of the American Rock Mechanics Association (ARMA), and the Chair of its Technical Committee on Hydraulic Fracturing. He is also the founder and chair of the ARMA Hydraulic Fracturing Community, a professional society representing 248 international organizations. He works in Upstream Technology Coordination at Aramco Services Company. With 20 plus years of experience in Petroleum Engineering, he focuses on the geo-mechanical technologies related to reservoir performance, well productivity, hydraulic fracturing, well planning, drilling, completion, sand control and management, and wellbore stability. He has over 50 technical publications and is a leading author of a multi-industry book, Drilling in Extreme Environments - Penetration and Sampling on Earth and Other Planets. He has a PhD in Chemical Engineering from University of Waterloo, a MASc in Reservoir Engineering from Research Institute of Petroleum E&D, and a BSc in Petroleum Engineering from China University of Petroleum (East China).



Organizing Committee Co-Chair

Xianzhi Song
Professor, College of Petroleum Engineering, CUPB;
Vice Director, Geothermal Research Center, CUPB;
Vice Dean, College of Artificial Intelligence, CUPB;
Director, Hydraulic Drilling & Completion Research branch of CNPC Key Laboratory of Drilling Engineering;

Dr. Xianzhi Song got his B.S degree in Petroleum Engineering from China University of Petroleum at East China in 2004 and PHD degree in Oil and Gas Well Drilling Engineering of CUPB in 2010. He also studied at the University of Oklahoma as a visiting PhD student from 2008 to 2009. His research areas involve drilling and completion, geothermal exploitation, artificial intelligence. More than 50 journal papers have been published in SPE Journal, Applied Energy, Energy, etc. More than 20 conference papers have been presented, and 20 patents have been authorized. He has obtained the National Natural Science Funds for Excellent Young Scholars of China. He has received the Awards of Science and Technology for the Excellent Youth by Sun Yue-Qi Foundation, the Awards of National Excellent Doctoral Dissertation, the Awards of Science and Technology Progress and the Awards of Technology Invention by the Ministry of Education of China (MOE), the Awards of Science and Technology Progress of China Petroleum and Chemical Industry Federation (CPCIF).

Organizing Committee Co-Chair

Shu Jiang
Professor, China University of Geosciences at Wuhan;
Research faculty, Energy & Geoscience Institute (EGI) at the University of Utah;

Dr. Shu Jiang is a professor at the China University of Geosciences at Wuhan and part-time research faculty at the Energy & Geoscience Institute (EGI) at the University of Utah. Previously, he was a full-time research faculty and Coordinator for China Program at EGI (2010-2018), and research associate at the University of Colorado at Boulder (2006-2010), and petroleum geologist at CNOOC Research Institute (2005-2006). He received a B.S. in Petroleum Engineering and a Ph.D. in petroleum geology, both from China University of Geosciences at Wuhan, and did postdoctoral research at the University of Colorado at Boulder. He is a seasoned scientist for conventional and unconventional petroleum and geothermal energy with >20 years' experience in geology, geophysics, engineering and geochemistry in both industry and academia. His research has produced 100+ publications in the leading professional journals (e.g., AAPG Bulletin, Marine and Petroleum Geology, Fuel, SPE Journal). He won top 10 presentations at AAPG meetings. He has proven track record in prospect generation from mature basins to frontier basins. He is a Certified Petroleum Geologist (CPG) and active member of AAPG, SEG and GSA. He also serves as an Advisory Member of the AAPG Shale Gas & Liquids Committee and has convened and convened and chaired many international meetings, e.g., Co-chair of organizing committee for 2019 ARMA-CUPB Geothermal International Conference and subtheme chair of 2018 AAPG ACE. He has been serving as Deputy Associate Editor for Interpretation and Associate Editor for Petroleum Science.

Short Course

» Basic Geomechanics Considerations in Drilling Geothermal Wells

John McLennan
ARMA Former President;
Adjunct Professor, Civil and Environmental Engineering, University of Utah;
Associate Professor, Chemical Engineering, University of Utah;

» Hydroshearing and Hydrofracking: Naturally Fractured Rock Mass Stimulation for EGS

Maurice B. Dusseault
ARMA Fellow;
Professor, Department of Earth and Environmental Sciences, University of Waterloo;

» Controls on Permeability and Seismicity in EGS Reservoir

Derek Elsworth
ARMA Fellow;
Member of American Academy of Engineering;
Professor, Departments of Energy and Mineral Engineering and Geosciences, G3 Center and EMS Energy Institute, Pennsylvania State University;

Keynote Presentation

» FORGE in 2019

John McLennan
ARMA Former President;
Adjunct Professor, Civil and Environmental Engineering, University of Utah;
Associate Professor, Chemical Engineering, University of Utah;

Since October 2009, John McLennan has been a USTAR Associate Professor in the Department of Chemical Engineering at the University of Utah. He has been a Senior Research Scientist at the Energy & Geoscience Institute and an Adjunct Professor in the Department of Civil Engineering at the University of Utah, since January 2008. He has a Ph.D. in Civil Engineering from the University of Toronto, awarded in 1980.He has more than thirty-five years of experience with petroleum service and technology companies. He worked nine years for Dowell Schlumberger in their Denver, Tulsa and Houston facilities. Later, John was with TerraTek in Salt Lake City, Advantek International in Houston, and ASRC Energy Services in Anchorage. He has worked on projects concerned with subsurface energy recovery (hydrocarbon, geothermal) in a variety of reservoir environments, throughout the world.

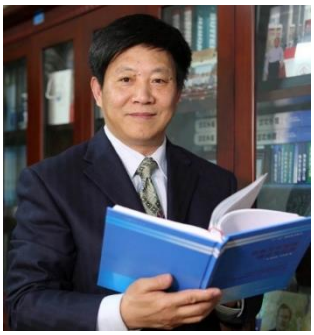
» Considerations on promoting exploitation of hot dry rock geothermal resources in China

Yaofeng Cao
Member of Chinese Academy of Engineering;
Former Vice President of Sinopec Group;
Director of the Steering Committee of the National Center Geothermal Energy Research and Application Technology Promotion;
Executive Committee Member of the World Business Council for Sustainable Development (WBCSD);
Vice Chairman of the China Energy Research Society;

Prof. Yaofeng Cao is responsible for organization and implementation of the State '11th Five-Year Plan' major project--'Sichuan-east Gas Transportation', which focuses on construct 10 billion natural gas production capacity in the Puguang high sour gas field as the core. The project 'safety and efficient development technology and its application on giant ultra-deep sour gas fields' led by him won the national special prize for S&T progress in2012.

He also organized the development of the projects like 2 million tons productivity construction of Shengli Chengdao Oilfied and he is a senior expert in offshore oil field construction especially in the shallow sea.

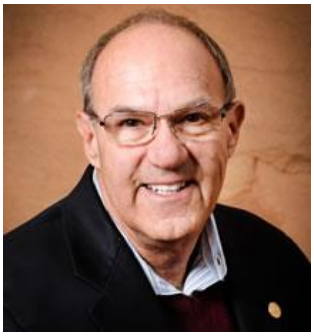
He is responsible for the geothermal industry development of Sinopec and promoting it to realize leap-frog development. Sinopec now has become the largest enterprise on geothermal development and utilization of China. He organized the key consulting project of Chinese Academy of Engineering-'strategic research on geothermal industrial planning and layout of China'.



» The Drilling, Stimulation and Extraction Technologies for Geothermal Resources

Gensheng Li
Member of Chinese Academy of Engineering;
Vice President, China University of Petroleum-Beijing(CUPB);
Professor, Department of Drilling Engineering, CUPB;
Director of State Key Laboratory of Petroleum Resources and Prospecting;

Prof. Gensheng Li has been engaged in the theoretical and technical research of oil and gas drilling and completion engineering for a long time, led the team to innovate and develop the theory of cavitation jet under confining pressure of deep wells, developed the technology of self-oscillating cavitation jet to improve drilling rate, and successfully applied the cavitation jet to deep wells in the world to improve drilling rate. At the same time, the theory and method of cavitation jet under confining pressure are applied to completion and stimulation of oil and gas fields. Rotary jet treatment technology for formation stimulation is pioneered. Hydraulic sand blasting perforation and sectional fracturing technology are invented. It provides an advanced and effective technical means for stable production, stimulation and efficient development of oil and gas fields. The technology of cavitation jet drilling, completion and fracturing is preliminarily formed in petroleum engineering. The technical system and field application benefit are remarkable, and the research level in this field of our country has entered the world's advanced ranks.



» The Frontier Observatory for Research on Geothermal Energy (FORGE): A Laboratory for Enhanced Geothermal System Development

Joseph Moore
Adjunct Professor, Department of Civil and Environmental Engineering, Energy and Geoscience Institute, University of Utah;
Associate Editor for the Americas, Geothermics Technical Advisory Board, Geothermal Energy Association;

Prof. Joseph Moore is from the Energy and Geoscience Institute of University of Utah and participating in the FORGE project.

Education https://egi.utah.edu/about/staff/joseph-moore/

1975 Ph.D. in Geology, Pennsylvania State University

1972 M.Sc. in Geology, Pennsylvania State University

1969 B.Sc. in Geology, City College of New York

Research Areas and Interests

Hydrothermal Alteration

Fluid Inclusion Investigations of Geothermal

Petroleum and CO2 Reservoirs

Mineralogy

» Optimizing Liquids- and Gas-Fracturing for Permeability Evolution in Naturally- and Artificially-Fractured Reservoirs

Derek Elsworth
ARMA Fellow;
Member of American Academy of Engineering;
Professor, Departments of Energy and Mineral Engineering and Geosciences, G3 Center and EMS Energy Institute, Pennsylvania State University;

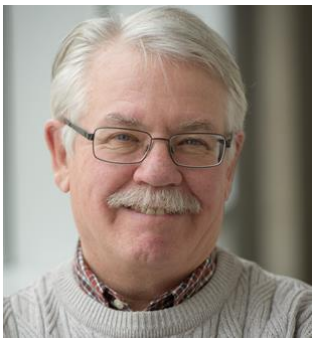
Derek Elsworth is a Professor in the Departments of Energy and Mineral Engineering and of Geosciences and the Center for Geomechanics, Geofluids, and Geohazards at Penn State. His interests are in the areas of computational mechanics, rock mechanics, and in the mechanical and transport characteristics of fractured rocks, with application to geothermal energy, the deep geological sequestration of radioactive wastes and of CO2 and unconventional hydrocarbons including coal-gas, tight-gas-shales and hydrates.

» The Impact of Stress and Fracture Roughness on Flow and Heat Transfer in Geothermal Rocks

Roland N. Horne
Member of the US National Academy of Engineering;
Honorary Member of the Society of Petroleum Engineers;
Professor of Earth Sciences and Professor of Energy Resources Engineering at Stanford University;
Director of the Stanford Geothermal Program;

Roland N. Horne is the Thomas Davis Barrow Professor of Earth Sciences and Professor of Energy Resources Engineering at Stanford University, and Director of the Stanford Geothermal Program. He was formerly the Chairman of the Department of Petroleum Engineering at Stanford from 1995 to 2006. He is best known for his work in well test interpretation, production optimization, and tracer analysis of fractured geothermal reservoirs. So far in his academic career he has supervised the graduate research of 53 PhD and 120 MS students, including about 60 in geothermal topics. He served on the International Geothermal Association (IGA) Board 1998-2001, 2001-2004, and 2007-2010, and was the 2010-2013 President of IGA. He was Technical Program Chairman of the World Geothermal Congress 2005 in Turkey, 2010 in Bali, Melbourne in 2015, and will be again in Iceland in 2020. Roland is one of the founders of the IGA online database of geothermal conference papers.

Roland is a member of the US National Academy of Engineering and an Honorary Member of the Society of Petroleum Engineers. He is also a Fellow of the School of Engineering, University of Tokyo and an Honorary Professor of China University of Petroleum – East China.



» Can We Model Stimulation Processes in Naturally Fractured Geothermal Reservoirs?

Maurice B. Dusseault
ARMA Fellow;
Professor, Department of Earth and Environmental Sciences, University of Waterloo;

Maurice is a Professional Engineer and teaches Geological Engineering at the University of Waterloo. He carries out research in deep underground engineering issues including oil production, hydraulic fracturing, energy storage, geothermal energy, carbon sequestration, and deep injection disposal of granular solids and liquid wastes (including biosolids, oilfield wastes, and civil wastes). He holds over 90 international patents, has about 580 full-text papers published in journals and conferences and has taught Petroleum Geomechanics short courses in 28 countries.

He is involved in energy technologies that can be downscaled to community levels to provide robust and reliable heat and power. These may include geothermal methods, natural gas approaches, compressed air energy storage, and heat geo-storage, among others. Many of the general energy processes he works on involve hydraulic fracture implementation to generate communication, or analysis to prevent hydraulic fracturing onset.

Invited Presentation

» Geological conditions for the development of China's Enhanced Geothermal System

Zhonghe Pang
Director of Geothermal Resources Research Center, Institute of Geology and Geophysics, Chinese Academy of Sciences Program Leader; Hydrogeological Processes and Probing, IGGCA Head, Laboratory for Water Isotopes and Water-Rock Interaction, IGGC.;

» Combining geologic CO2 storage with 1) geothermal power generation, 2) subsurface, grid-scale energy storage, and 3) direct-air CO2 capture

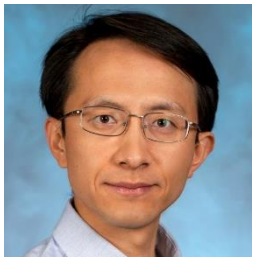
Martin Saar
Chair of the Geothermal Energy and Geofluids (GEG) Group, Department of Earth Sciences, ETH Zurich;
Co-Founder of CO2 POWER GmbH, ETH Zurich, Switzerland;

» Geological Background and Development Characteristics of Hot Dry Rock in Gonghe Basin, China

Dongguang Wen
Professor, Director of Center for Hydrogeology and Environmental Geology Survey, China Geological Survey;

» Research on the coupled Method of Explosion-hydraulic Fracturing by Downhole Robot in Hot-Dry Rock

Qingyou Liu
The Ministry of Education Yangtze River Professor;
President of Chengdu University of Technology;
Academic Director of Drill Bit Laboratory;



» EGS Collab Project: Overview, Progress, and Invitation to a Rich, High-Quality Dataset for EGS Model Validation

Pengcheng Fu
Earth Scientist, Computational Geosciences Group at Lawrence Livermore National;
Laboratory Member of The EGS Collab team;

» The Challenge and Future Development of Hydraulic Fracturing in Deep Hot-Dry Rock in EGS

Jianchun Guo
Yangtze River Scholar, The Ministry of Education;
Vice president of Southwest Petroleum University;
Deputy Director of the State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation;

» New Technology for Coproduction of Oil-heat-electricity in Oil Fields

Kewen Li
Senior Scientist, Research Manager at Stanford University;
Professor at China University of Geosciences, Beijing;

» Modeling Thermal-Hydraulic-Mechanical Processes in Enhanced or Engineered Geothermal Systems

Yushu Wu
Professor of petroleum reservoir engineering, Colorado School of Mines (CSM);
USA Chair, Energy Simulation Reservoir Modeling;
Director of Energy Modeling Group (EMG) research center in the Petroleum Engineering Department;

» Challenges and New Technologies for Deep Geothermal Well Drilling and Completion

Zhongwei Huang
Director, Department of Well Drilling, College of Petroleum Engineering, China University of Petroleum-Beijing(CUPB);
Director, Geothermal Research Center, State Key Laboratory of Petroleum Resources and Prospecting, CUPB;

» From Steaming Ground to Power Plant -- A Review on the Yangyi 16-MW Geothermal Project

Haibing Shao
Junior Professor, Staff Scientist, Department of Environmental Informatics Helmholtz Centre for Environmental Research – UFZ (National Lab);
Editor-in-Chief, Geothermal Energy;

» Successful Implementation of HT Geothermal Drilling Technologies in Kenya

Zhaofeng Zhang
Senior Engineer, General Manager of GWDC Kenya

Sponsors

The success of the 2019 ARMA-CUPB Geothermal International Conference depends on the generous sponsorships and contributors of university and corporate. The ARMA-CUPB would like to thank the following for their generous support.

Conference Agenda

August 5, 2019	
Short Course: Training and Registration	
13:00 – 18:00	John McLennan: Basic Geomechanics Considerations in Drilling Geothermal Wells
	Maurice Dusseault: Hydroshearing and Hydrofracking: Naturally Fractured Rock Mass Stimulation for EGS
	Derek Elsworth: Controls on Permeability and Seismicity in EGS Reservoirs
August 6, 2019	
8:00 – 8:30	Opening Mark: ARMA and CUPB Chairs
Opening Keynote	
8:30 – 9:00	Gensheng Li: The Drilling, Stimulation and Extraction Technologies for Geothermal Resources
9:00 – 9:30	Yaofeng Cao: Considerations on promoting exploitation of hot dry rock geothermal resources in China
Session 1: Drilling and Completion Chairs: Jiang Shu (CUG-UU), Yarlong Wang (Petro-Geotech Canada)	
9:30 – 9:50 Invited Talk	Zhongwei Huang: Challenges and New Technologies for Deep Geothermal Well Drilling and Completion
9:50 –10:10 Invited Talk	Zhaofeng Zhang: Successful Implementation of HT Geothermal Drilling Technologies in Kenya
10:10 – 10:25	Masoud Rashidi: Machine Learning's Application in Estimation of the Drilling Rate of Penetration – A Case Study from a Wellbore in Iran
10:25 – 10:40	Zifan Zhang: Three dimensional DEM simulation of rock indentation by flat-joint model
10:40 – 10:55	Xianfeng Song: A Phenomenological Model of Percussive Drilling: Review of Experimental Evidence
10:55 – 11:10	Coffee Break
Session 2: Enhanced Geothermal System Chairs: Weiguo Liang (TYUT), River Chu (Itasca)	
11:10 – 11:30 Invited Talk	Pengcheng Fu: EGS Collab Project: Overview, Progress, and Invitation to a Rich, High-Quality Dataset for EGS Model Validation
11:30 – 11:50 Invited Talk	Jianchun Guo: The Challenge and Future Development of Hydraulic Fracturing in Deep Hot-Dry Rock in EGS
11:50 – 12:05	Xiaodong Ma: Bedretto Underground Laboratory (BUL), Switzerland, and the planned in situ hydraulic stimulation experiments for EGS
12:05 – 12:20	Ruiyue Yang: Experimental Investigation of Liquid Nitrogen

	Fracturing of Granite Under Triaxial-Confining Stresses
12:20 – 12:35	Yilong Yuan: Coupled Thermo-Hydro-Mechanical Modeling for Hydro-shearing Stimulation of an Enhanced Geothermal System in the Raft River
12:35 – 13:30	Lunch
Keynote	
13:30 – 14:00	John McLennan: FORGE in 2019
Session 3: Hydraulic Fracturing Chairs: Haiyan Zhu (Chengdu U of Tech); Xiandong Ma (ETH Switzerland)	
14:00 – 14:15	Zhennan Zhang: Hydromechanical coupled hydraulic fracture simulation by using discretized virtual internal bonds
14:15 – 14:30	Yarlong Wang: Thermal Cracking near a Hydraulic Fracture during EGS Processes : Finite Element Model and Implications
14:30 – 14:45	Ayaka Abe: Investigating Wing Crack Propagation during Hydraulic Stimulation in an EGS Reservoir
14:45 – 15:00	Guangqing Zhang: Hydraulic Fracturing in High-Temperature Granite Characterized by Acoustic Emission
15:00 – 15:15	Yongxiang Zheng: A 3D Numerical Simulation of Hydraulic Fracturing in Orthogonal Joints Formation Based on Block Discrete Elements
15:15 – 15:30	Xuhai Tang: A coupled thermo-mechanical model based on TOUGH-FEMM for simulating three-dimensional cracking processes
15:30 – 15:45	Dong Liu: Effect of Solid Non-linearity on the Growth of a Radial Hydraulic Fracture Accounting for the Viscous Fluid Flow in a Rough Cohesive
15:45 – 16:00	Feng Sun: Impact of In-plane Perforations on Near-Wellbore Fracture Geometry in Horizontal Wells
16:00 – 16:30	Coffee Break, Poster Discussion
Session 4: CO2 and Environment Chairs: Jeoung Seok Yoon (GFZ Germany); Shifeng Xue (UPC)	
16:30 – 16:50 Invited Talk	Martin O. Saar: CCUUUS: Utilizing CO2 capture and storage for 1) geothermal power generation, 2) subsurface energy storage, and 3) direct-air CO2
16:50 – 17:10 Invited Talk	Kewen Li: New Technology for Coproduction of Oil-heat-electricity in Oil Fields
17:10 – 17:25	Zixu Hu: Thermal and Fluid Processes in Closed-Loop Geothermal System Using CO2 as Heat Transmission Fluid
17:25 – 17:40	XiangZhao Kong: Experimentally Exploring Permeability Evolution Induced by THMC-coupled Processes
17:40 – 17:55	Bo Feng: Influences of Reinjection by Lake Water and

	Geothermal Tail Water into the Dolomite Thermal Reservoir of the Wumishan Formation
Welcome Reception	
18:30 – 19:30	Opening speaking: ARMA and CUPB
Keynotes	
19:30 – 20:00	Derek Elsworth: Optimizing Liquids- and Gas-Fracturing for Permeability Evolution in Naturally- and Artificially-Fractured Reservoirs
20:00 – 20:30	Maurice Dusseault: Can We Model Stimulation Processes in Naturally Fractured Geothermal Reservoirs?
August 7, 2019	
Keynote	
8:00 – 8:30	Joseph Moore: The Frontier Observatory for Research on Geothermal Energy (FORGE): A Laboratory for Enhanced Geothermal System Development
Session 5: Field Development Chairs: Jian Zhou (SINOPEC); Mao Sheng (CUPB)	
8:30 – 8:50 Invited Talk	Zhonghe Pang: Geological Conditions for the Development of China's Enhanced Geothermal System
8:50 – 9:10 Invited Talk	Haibing Shao: From Steaming Ground to Power Plant -- A Review on the Yangyi 16-MW Geothermal Project
9:10 – 9:25	Shengrong Song: Current Status of Geothermal Developments in Taiwan
9:25 – 9:40	Shu Jiang: Present Geothermal Fields and Geothermal Resource Potentials in the Dongpu Depression
9:40 – 9:55	Peter Meier: Benchmark Testing of Zonal Isolation Borehole Completions for Multi-stage EGS Stimulation in the Bedretto Underground Rock
9:55 – 10:10	Coffee Break
Keynote	
10:10 – 10:40	Roland N. Horne: The Impact of Stress and Fracture Roughness on Flow and Heat Transfer in Geothermal Rocks
Session 6: Case Studies Chairs: Zhaowei Chen (CNPC); Kaibin Qiu (Schlumberger)	
10:40 – 11:00 Invited Talk	Dongguang Wen: Geological Background and Development Characteristics of Hot Dry Rock in Gonghe Basin, China
11:00 – 11:20 Invited Talk	Qingyou Liu: Research on the Method of Explosion-hydraulic Fracturing for Hot Dry Rock Used Downhole Robot
11:20 – 11:35	Maurice Dusseault: Inference of In-situ Stress from Thermoporoelastic Borehole Breakouts in Enhanced Geothermal Systems Development

11:35 – 11:50	Delphine Roubinet: Analytical and numerical models for heat transfer and geothermal performances in fractured rocks.
11:50 – 12:05	Tianyi Lin: Application Research of Acid-Fracturing Technology in Hydrothermal System
12:05 – 12:20	Zhaowei Chen: Case study: Casing deformation and Fault slip induced by Hydraulic Fracturing in Sichuan Basin
12:20 – 13:00	Lunch
Session 7: Reservoir Simulation and Engineering Chairs: Fujian Zhou (CUPB); Li Zhuang (KICT)	
13:00 – 13:20 Invited Talk	Yushu Wu: Modeling Thermal-Hydraulic-Mechanical Processes in Enhanced or Engineered Geothermal Systems
13:20 – 13:35	River Chu: Informed Design of EGS Operations using Numerical Modeling Tools
13:35 – 13:50	Zhao Zhang: A Flow Diagnostic Method for Geothermal Reservoirs
13:50 – 14:05	Zhengbin Wu: Influence of Mineral Composition on Thermal Conductivity and Productivity of Carbonate Geothermal Reservoir
14:05 – 14:20	Heng Zhang: Study on a Dual Embedded Discrete Fracture Model Based on Local Upscaling
14:20 – 14:35	Shiyuan Li: Numerical Modeling of Reactive Chemical Species Transport in Reservoir Fluids
14:35 – 14:50	Junfei Ma: Applications of Carbon Dots as Sensitive Tracers in Reservoir Engineering
14:50 – 15:05	Coffee Break
Session 8: Experiments and Models Chairs: Zhao Zhang (SWPU); Bisheng Wu (Tsinghua University)	
15:05 – 15:25 Invited Talk	Gongsheng Zhu: Experimental Study on the Mechanical Properties of the Pre-treated Granite with High Temperature
15:25 – 15:40	Jeoung Seok Yoon: Numerical Analysis of Fluid Injection Induced Fault Activation - Effect of Fault Hydraulic Properties on Activation Magnitudes and its Mechanisms
15:40 – 15:55	Wei Wu: Fluid Pressure Heterogeneity in Rock Fractures and Associated Frictional Slip
15:55 – 16:10	Bisheng Wu: Fully Coupled Thermo-Hydro-Mechanical Analysis of Wellbore Stability in Hot Dry Rock formation with Dual Porosity and Dual Permeability
16:10 – 16:25	Mianmo Meng: The Study of Tight Gas Reservoirs Imbibition by Nuclear Magnetic Resonance

16:25 –16:40	Gang Wang: Evolution of Seepage in Microfracture Structure of Coal Subject to 3D Stress Environment
16:40 –16:55	Wenjin Li: Influence of Fracture Treatment Parameters on Hydraulic Fracturing Optimization in Unconventional Formations
16:55 –17:10	Lei Zhou: A Novel 3D Numerical Model to Simulate the Induced Seismicity by Hydraulic Fracturing in HDR Geothermal Reservoir
17:10 –17:25	Jie Wang: Study on the Influence of CO2 Finger-Channeling Flooding on Oil Displacement Efficiency and Anti-channeling Method
17:25	Closing Mark: ARMA and CUPB

Location

Short Course	No.88 Room, 2nd floor
Opening and Closing Mark	Conference Room, 1st floor, C of banquet hall
Keynote and Session 1 - 8	Conference Room, 1st floor, C of banquet hall
Lunch and Welcome Reception	Dining Room, 1st floor, A of banquet hall

Poster Presentation

Drilling and Completion	A Transient Pressure Analysis for Wellbore Strengthening	Yang Liu
	How and Would Hydraulic Fracturing process affect Wellbore Stability near a Cooled/heated well?	Yarlong Wang
	Analytical model of collapse pressure in fracture zone based on hot dry rock concerning the effect of incompatible deformation	Yingtong Ju
	Analysis of Cement Sheath Integrity in Thermal Wells Using Finite Element Method	Chengcheng Zhang
	Predicting bubble drag coefficient and settling velocity of sphere in bubble containing Newtonian fluids	Silin Jing
	Inclination-Hold Angle Optimization of Extended Reach Well: For the Maximum Extension in Target Formation Under its Pressure-Bearing Limitation	Qimin Liang
	Improved Calculation Method of Conductor Mechanics Based on Field Simulation Experiment	Yongqi Ma
	Experiment on the damage of cement-shale combination samples	Rengguang Liu
	Study on Borehole Stability of Offshore HTHP Wells during Open Hole Testing	Erjun Wang
	Application of Formation Pressure While Drilling Prediction Technology in Offshore HTHP Wells	Yi Huang
	Structural Failure Mechanism of Fracture Plugging Zone for Lost Circulation Control in Geothermal Well Drilling	Xiaopeng Yan
	Promoting hydraulic fracturing--side benefits of the DTH hammer drilling in HDR reservoirs	Jianming Peng
	Study on a new cement slurry system with high temperature resistance for the hot-dry rock formation	Peiqing Lu
Enhanced Geothermal Systems	An Analytical Method for Heat Extraction Through the Split Fractures in the Enhanced Geothermal System	Yijia Tang
	The Effect of Pressure-dependent Permeability on EGS in Low-permeability HDR	Yarlong Wang
	The comparative study on acid and alkaline chemical stimulation with Hot Dry Rock（HDR）rich of quartz-rich minerals	Bo Feng
Experiments and Models	Thermal Conductivity Variation of Granite Subjected to Mechanical Damage	Zhengwei Li

Hydraulic Fracturing	Fracture Initiation Characteristics from Multiple Radial Wellbores	Qingling Liu
	The Challenge and Future Development of Hydraulic Fracturing in Deep Hot-Dry Rock in EGS	Jianchun Guo
	Effect of fluid compressibility on hydraulic fracture breakdown pressure	Tianyu Wang
	Experimental Investigation of Geometric Effects on Rock Mechanical Behaviors	Hui Li
	Temperature-dependency of Mechanical Properties of Hydraulic Fracture Surface and its Influence on Conductivity: An Experimental Study for Development	Ning Li
	Hydraulic fracture propagation in sand-mudstone interbedded reservoir integrated with different fluid flow of multi-perforated fractures	Haiyan Zhu
	Effects of Hydrochloric Acid on the Mechanical And Elastic Properties of Tight Dolomite	Bo Gou
	Investigation of the Hydraulic Fracturing Process in Conglomerate Reservoir Using Discrete Element Method	Shentu Junjie
	Research on Main Control Factors Influencing Fracturing Effect of Jiaoshiba Area Based on Grey Relational Analysis	Yue Xiao
	A Semi-Analytical Model for Pressure Transient Analysis of Horizontal Well with Multiple and Arbitrary-shape Horizontal Fractures	Hongyang Chu
Case Studies	Analysis of Thermal and Operating Performance of Thermosyphon and Heat Pipe	M. Finlayson
	US Department of Energy's Geothermal Technology Office and its project review	Chongxin Jiang
	Molecular simulation research of the mechanical properties of hydrated clay-minerals with high temperature	Lizong Li
Reservoir Simulation and Reservoir Engineering	Research on the influence of thickness and test method on fracture characteristics of thin layered rock mass	Yizhao Wang
	Simulating Hydraulic fracturing process in EGS by a dual-porosity model in Naturally or induced fractured formations	Wenda Li
	Comparison of Extended Path of Cracks in Layered Rocks under Three Different Loading Modes	Yizhao Wang
	Influence of formation heterogeneity on heat transfer mechanism of doublet well system	Bo Feng
CO2 and Environment	Thermal and Fluid Processes in Closed-Loop Geothermal System Using CO2 as Heat Transmission Fluid	Zixu Hu

Field Development	Mineralogy-controlled friction, stability and dilation properties for China's major reservoir rocks	Mengke AN
	Potential chemical damaging to the geothermal reservoir and optimization of double-well heat production and injection system	Jingyi Chen
	Effect of internal heat recovery on thermodynamic performance for geothermal organic flash cycles	Dongyu Meng
	Energy and exergy analyses of organic Rankine cycles with selected working fluids using low-enthalpy geothermal resources	Qiang Liu

Hotel Accommodation

Jiu Hua Hotel

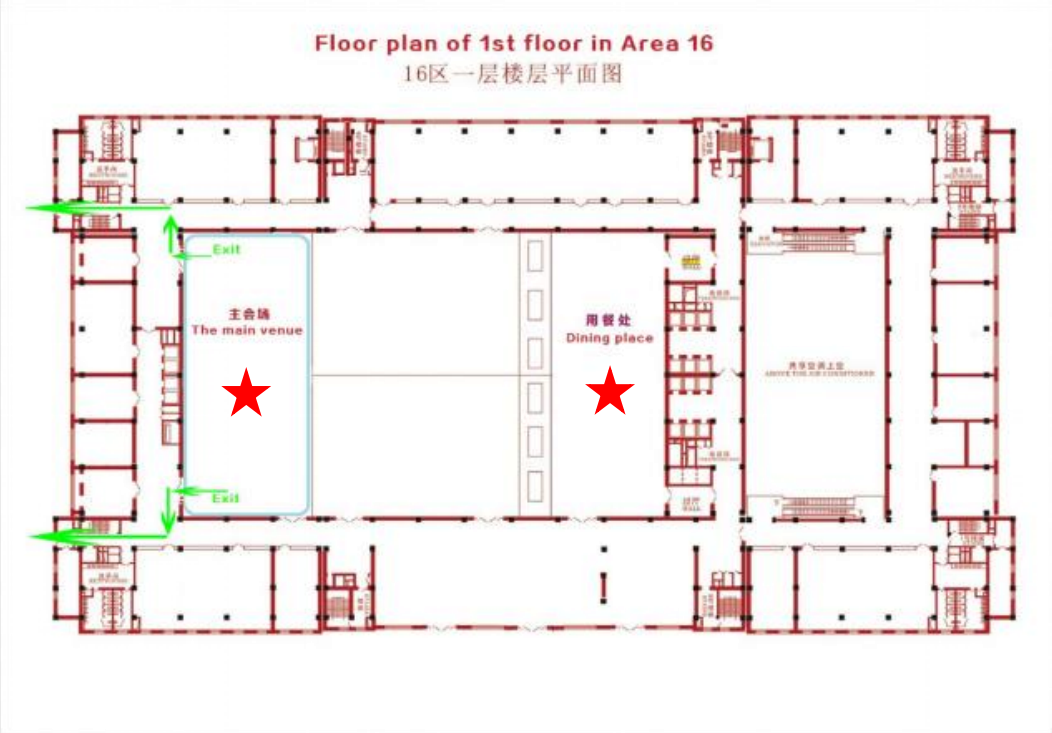
Address: No. 75, Shunsha Road, Xiaotangshan Town, Changping District, 102211, Beijing, China

Jiu Hua hotel is located in Xiaotangshan town Changping District, Beijing, China. It is a classical garden countyard building, covers a total area of more than 2000 acres with different grades of type and more than 2300 rooms, nearly 5000 beds in different style rooms, and more than a dozen different restaurants, 6000 seats, it has perfect meeting facilities with more than 100 different specifications and more than 60 thousand square meters of meeting rooms, which can meet ten thousands of people at the meeting, and meet the requirements from dozens of people gathering to the thousands of people meeting. Jiu hua hotel has a variety of hot springs, health care, entertainment and sports.

Hotel reservations are available when check-in on site. You can also reserve room in advance through the hotel website, http://www.jiuhua.com.cn.

Floor Plan


北
九华山庄平面图
JIUHUA RESORT & CONVENTION CENTER PLAN
16区
ARMA geothermal
international conference
Meeting place
Jiuhua International Exhibition Center
15区
康乐宫
9区
10区
11区
九华健康体检
五大殿
12区
九华山庄


Floor plan of 1st floor in Area 16
16区一层楼层平面图
Exit
主会场
The main venue
用餐处
Dining place
Exit

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