

## 关于召开“2019 ARMA-CUPB 地热 国际会议”的通知

从传统水热系统到增强型地热能源：与油气工业共享技术

各有关单位：

地热能作为一种重要的可再生清洁能源，具备储量巨大、用途广泛、利用系数高、安全系数高等诸多优点，发展前景广阔，是未来能源开发的重要领域。而石油化石能源是目前各国的主要能源，其与地热能在开采过程中有很多共通之处。

为促进新理论、新方法和新技术在地热领域的发展，增进国际交流，推动学科交叉、融合、发展，由美国岩石力学学会（ARMA）与中国石油大学（北京）共同主办，拟定于2019年8月5-8日在北京召开2019 ARMA-CUPB 地热国际会议。会议主题：从传统水热系统到增强型地热能源：与油气工业共享技术。参会代表来自中国、美国、英国、瑞士、韩国、印度等不同国家地区，会议规模预计150余人。

特邀报告嘉宾包括ARMA前主席、犹他大学讲习教授John McLennan，ARMA主席、美国劳伦斯实验室Joe Morris，美国工程院院士、美国宾州州立大学Derek Elsworth，美国能源部FORGE地热项目首席科学家Joe Moore，美国工程院院士、斯坦福大学讲习教授Roland Horne等10余位地热与岩石力学领域知名专家以及国内特邀嘉宾：汪集暘院士、多吉院士、马永生院士、曹耀峰院士、苏义脑院士等。

# 从传统水热系统到增强型地热能源:与油气工业共享技术

## 一、主办单位

美国岩石力学学会 (American Rock Mechanics Association)

中国石油大学 (北京)

## 二、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.    Yongsheng Ma - CAE / President of SINOPEC  
Maurice Dusseault – ARMA Fellow / U of Waterloo    Yinao Su – CAE / CNPC Petro. Eng. Institute  
Jiyang Wang – CAS / CAS Institute of G & G    Zhaoping Zhang – President of SINOPEC Star  
Ji Duo – CAE / Geological Survey of Tibet    Baoping Lu – President of SINOPEC Research Institute of PE  
Yaofeng Cao – CAE / Former VP of SINOPEC    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)

Joe Morris – ARMA President / Lawrence Livermore  
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



# 从传统水热系统到增强型地热能源：与油气工业共享技术

## 三、Short Course



### » Basic Geomechanics Considerations in Drilling Geothermal Wells

John McLennan  
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  
PhD, ARMA Fellow  
Professor, Earth and Environmental Sciences Dept., University of Waterloo, Waterloo



### » Controls on Permeability and Seismicity in EGS Reservoir

Derek Elsworth  
ARMA Fellow, Academician of the American Academy of Engineering  
Professor, Departments of Energy and Mineral Engineering and Geosciences, G3 Center and EMS Energy Institute, Pennsylvania State University, University Park, USA

## 四、Keynote Presentation



### » FORGE in 2019

John McLennan



## 从传统水热系统到增强型地热能源：与油气工业共享技术

Adjunct Professor, Civil And Environmental Engineering, University of Utah  
Associate Professor, Chemical Engineering, University of Utah



### » The Drilling, Stimulation and Extraction Technologies for Geothermal Resources

Gensheng Li  
Member of Chinese Academy of Engineering  
Vice President, China University of Petroleum, Beijing  
Professor, China University of Petroleum, Beijing  
Director of State Key Laboratory of Petroleum Resources and Prospecting



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

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



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

Derek Elsworth  
ARMA Fellow, Academician of the American Academy of Engineering  
Professor, Departments of Energy and Mineral Engineering and Geosciences, G3 Center and EMS Energy Institute, Pennsylvania State University, University Park, USA

## 从传统水热系统到增强型地热能源：与油气工业共享技术



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

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



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

Maurice B. Dusseault  
PhD, ARMA Fellow  
Professor, Earth and Environmental Sciences Dept.,  
University of Waterloo, Waterloo

## 五、Invited Presentation



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

Zhonghe Pang  
Director, 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.





## 从传统水热系统到增强型地热能源：与油气工业共享技术



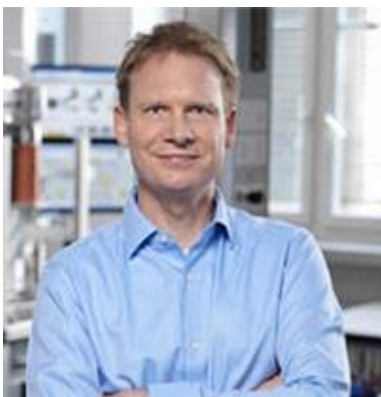
» **New methods for reservoir and inertia dominated fluid dynamics modelling in geothermal energy extraction and Oil & Gas**

Christopher C. PAIN  
Professor of Earth Science and Engineering at Imperial College London (ICL), UK.  
Head of Applied Computation and Modelling Group (AMCG)



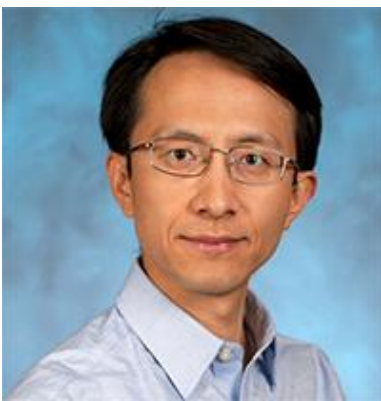
» **Coupled Processes, Rock Deformation, and Fracture in EGS Development**

Ahmad Ghassemi  
McCasland Chair Professor of the Mewbourne School of Petroleum & Geological Engineering, OU  
Director of the Halliburton Rock Mechanics Laboratory



» **Combining geologic CO<sub>2</sub> storage with 1) geothermal power generation, 2) subsurface, grid-scale energy storage, and 3) direct-air CO<sub>2</sub> capture**

Martin Saar  
Chair of the Geothermal Energy and Geofluids (GEG) Group  
Department of Earth Sciences, ETH Zurich, Switzerland



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



# 从传统水热系统到增强型地热能源：与油气工业共享技术

## Model Validation

Pengcheng Fu

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



**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**



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

Jianchun Guo

The Ministry of Education Yangtze River Professor  
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**

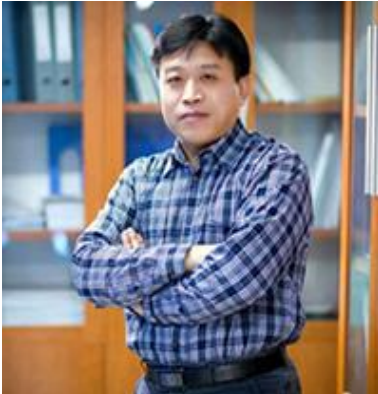


# 从传统水热系统到增强型地热能源：与油气工业共享技术

## Processes in Enhanced or Engineered Geothermal Systems

Yushu Wu

Professor of petroleum reservoir engineering, Colorado School of Mines (CSM), USA  
Chair, Energi 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, China (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), Germany  
Editor-in-Chief, Geothermal Energy



## 六、大会日程

2019年8月5日：上午注册（注册费\$700/¥4690），下午短课培训

2019年8月6日：主题报告：钻完井、增强地热系统、压裂生产、CO<sub>2</sub>与环境

2019年8月7日：主题报告：地热开发开发、实例分析、数值模拟、实验与模型

2019年8月8日：现场考察：北京世园会地热考察

会议地点及住宿：

中国北京市昌平区小汤山镇九华山庄酒店16区（单人间、标准间）

## 大会详细日程

（具体日程会随时更新请在官网查看）

August 5, 2019	
Short Course: Training and Registration	
13:00 – 17:00	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

## 从传统水热系统到增强型地热能源：与油气工业共享技术

<b>Session 1: Drilling and Completion</b>	
<b>Chairs: Jiang Shu(CUG-UU),Yarlong Wang(Petro-Geotech Canada)</b>	
9:00 – 9:20 Invited Talk	Zhongwei Huang: Challenges and New Technologies for Deep Geothermal Well Drilling and Completion
9:20 – 9:35	Masoud RASHIDI: Support Vector Machine’s Application in Estimation of the Drilling Rate of Penetration
9:35 – 9:50	Zifan Zhang: Three dimensional DEM simulation of rock indentation by flat-joint model
9:50 – 10:05	Jiajia Gao: Fully Coupled Thermo-Hydro-Mechanical Analysis of Wellbore Stability in Hot Dry Rock formation with Dual Porosity and Dual Permeability
10:05 – 10:20	Sun Feng: Impact of In-plane Perforations on Near-Wellbore Fracture Geometry in Horizontal Wells
10:20 – 10:35	Song Xianfeng: A Phenomenological Model of Percussive Drilling: Review of Experimental Evidence
10:35 – 10:45	Coffee Break
<b>Session 2: Enhanced Geothermal System</b>	
<b>Chairs: Ahmad Ghassemi (Oklahoma U), Xianzhi Song (CUPB)</b>	
10:45 – 11:05 Invited Talk	Pengcheng Fu: EGS Collab Project: Overview, Progress, and Invitation to a Rich, High-Quality Dataset for EGS Model Validation
11:05 – 11:25 Invited Talk	Jianchun Guo: The Challenge and Future Development of Hydraulic Fracturing in Deep Hot-Dry Rock in EGS
11:25 – 11:45 Invited Talk	Kewen Li: New Technology for Coproduction of Oil-heat-electricity in Oil Fields
11:45 – 12:00	Xiaodong Ma: Bedretto Underground Laboratory (BUL), Switzerland, and the planned in situ hydraulic stimulation experiments for EGS
12:00 – 12:15	Ruiyue Yang: Experimental Investigation of Liquid Nitrogen Fracturing of Granite Under Triaxial-Confining stresses
12:15 – 12:30	Yilong Yuan: Coupled Thermo-Hydro-Mechanical Modeling for Hydro-shearing Stimulation of an Enhanced Geothermal System in the Raft River
<b>Lunch Keynote</b>	
12:30 – 13:30	John McLennan: FORGE in 2019
<b>Session 3: Hydraulic Fracturing</b>	
<b>Chairs: Haiyan Zhu (Chengdu U of Tech); Xiandong Ma (ETH Switzerland)</b>	
13:30 – 13:50 Invited Talk	Ahmad Ghassemi: Coupled Processes, Rock Deformation, and Fracture in EGS Development
13:50 – 14:10 Invited Talk	Qingyou Liu: Research on the Method of Explosion-hydraulic Fracturing for Hot Dry Rock Used Downhole Robot
14:10 – 14:25	Yarlong Wang: Thermal Cracking near a Hydraulic Fracture during EGS Processes : Finite Element Model and Implications
14:25 – 14:40	Ayaka ABE and Roland N. HORNE: Investigating Wing Crack Propagation during Hydraulic Stimulation in an EGS Reservoir
14:40 – 14:55	Guangqing Zhang: Hydraulic Fracturing in High-Temperature Granite Characterized by Acoustic Emission
14:55 – 15:10	Yongxiang Zheng: A 3D numerical simulation of hydraulic fracturing in orthogonal joints formation based on block discrete elements

## 从传统水热系统到增强型地热能源：与油气工业共享技术

15:10 – 15:25	Xuhai Tang: A coupled thermo-mechanical model based on TOUGH-FEMM for simulating three-dimensional cracking processes
15:25 – 15:40	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
15:40 – 15:55	Tianyi Lin: Application Research of Acid-Fracturing Technology in Hydrothermal System
15:55 – 16:10	Wei Wu: Mechanism of injection-induced seismicity: recent insights and implications
16:10 – 16:20	Coffee Break
<b>Session 4: CO2 and Environment</b>	
<b>Chairs: Jeoung Seok Yoon (GFZ Germany); Shifeng Xue (UPC)</b>	
16:20 – 16:40 Invited Talk	Martin O. Saar: CCUUS: Utilizing CO2 capture and storage for 1) geothermal power generation, 2) subsurface energy storage, and 3) direct-air CO2
16:40 – 16:55	Kelvin Bongole: Efficient geothermal extraction with CO2 sequestration by cyclic alternation of injection and production pressures
16:55 – 17:10	Zixu Hu: Thermal and Fluid Processes in Closed-Loop Geothermal System Using CO2 as Heat Transmission Fluid
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 – 17:40	Jeoung Seok YOON: Numerical analysis of fluid injection induced fault activation - Effect of fault hydraulic properties on activation magnitudes and its mechanisms
17:40 – 17:55	Yunzhong Jia: Fluid Pressure Heterogeneity in Rock Fractures and Associated Frictional Slip
17:55 – 18:10	FENG Bo: Influences of reinjection by lake water and geothermal tail water into the dolomite thermal reservoir of the Wumishan Formation
<b>Welcome Reception</b>	
18:30 – 19:30	Opening speaking: ARMA and CUPB
<b>Keynote</b>	
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?
<b>August 7, 2019</b>	
<b>Morning Keynote</b>	
8:00 – 8:30	Joseph Moore: The Frontier Observatory for Research on Geothermal Energy (FORGE): A Laboratory for Enhanced Geothermal System Development
<b>Session 5: Field Development</b>	
<b>Chairs: Jian Zhou (SINOPEC); Sheng Mao (CUPB)</b>	



## 从传统水热系统到增强型地热能源：与油气工业共享技术

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	Mohammed Ba Geri: New Opportunities and Challenges to Discover and Develop Unconventional Plays in The Middle East and North Africa: Critical
9:40 – 9:55	Shu Jiang: Present geothermal fields and geothermal resource potentials in the Dongpu Depression
9:55 – 10:10	Peter MEIER: Benchmark testing of Zonal Isolation borehole completions for multi-stage EGS stimulation in the Bedretto underground rock
10:10 – 10:25	Coffee Break
<b>Session 6: Case Studies</b>	
<b>Chairs: Zhaowei Chen (CNPC); Kaibin Qiu (Schlumberger)</b>	
10:25 – 10:40	Zhaowei Chen: Case study: Casing deformation and Fault slip induced by Hydraulic Fracturing in Sichuan Basin
10:40-10:55	Masoud Rashidi: Classification Ability of Machine Learning Algorithms for Optimum Drilling Bit Type Selection A Case Study using Comprehensive Drilling and Logging Data
10:55-11:10	Peiqing Lu: Study on a New Cement Slurry System with High Temperature Resistance for the Hot-dry Rock Formation
11:10 – 11:25	Zhengbin Wu: Influence of Mineral Composition on Thermal Conductivity and Productivity of Carbonate Geothermal Reservoir
11:25 – 11:40	Yu Wang: Heat Extraction Potential Evaluation of Supercritical Water --Based on IDDP-2 Well of Reykjanes Geothermal Field, Iceland
11:40 – 11:55	Chyi Wang: Outlook of Geothermal Exploration Potentials in Taiwan Through Play Fairway Analysis, Chyi WANG
<b>Lunch Keynote</b>	
12:00 – 13:00	Roland Horne: The Impact of Stress and Fracture Roughness on Flow and Heat Transfer in Geothermal Rocks
<b>Session 7: Reservoir Simulation and Engineering</b>	
<b>Chairs: Fujian Zhou (CUPB); Christopher Pain (Imperial College London)</b>	
13:00 – 13:20 Invited Talk	Chris Pain: New methods for reservoir and inertia dominated fluid dynamics modelling in geothermal energy extraction and Oil & Gas
13:20 – 13:40 Invited Talk	Yushu Wu: Modeling Thermal-Hydraulic-Mechanical Processes in Enhanced or Engineered Geothermal Systems
13:40 – 13:55	Azadeh Riahi & Branko Damjanac: Informed Design of EGS Operations using Numerical Modeling Tools
13:55 – 14:10	Fengyu Li: Optimization of geothermal injection and production

## 从传统水热系统到增强型地热能源：与油气工业共享技术

	using coupled thermal-hydraulic modeling
14:10 – 14:25	Zhao Zhang: A Flow Diagnostic Method for Geothermal Reservoirs
14:25 – 14:40	Heng Zhang: Study on a Dual Embedded Discrete Fracture Model Based on Local Upscaling
14:40 – 14:55	Shiyuan Li: Numerical Modeling of Reactive Chemical Species Transport in Reservoir Fluids
14:55 – 15:10	Junfei Ma: Applications of Carbon Dots as Sensitive Tracers in Reservoir Engineering
15:10 – 15:25	Coffee Break
<b>Session 8: Experiments and Models</b>	
<b>Chairs: Yiqun Zhang (CUPB); Bisheng Wu (Tsinghua University)</b>	
15:25 – 15:40	Gongsheng Zhu: Experimental study on the mechanical properties of the pre-treated granite with high temperature
15:40 – 15:55	Mianmo Meng: The Study of Tight Gas Reservoirs Imbibition by Nuclear Magnetic Resonance
15:55 – 16:10	Gang Wang: Evolution of seepage in microfracture structure of coal subject to 3D stress environment
16:10 – 16:25	Hua Zhang: Inference of in-situ stress from thermoporoelastic borehole breakouts in Enhanced Geothermal Systems development
16:25 – 16:40	Marshal Wigwe: Influence of Fracture Treatment Parameters on Hydraulic Fracturing Optimization in Unconventional Formations
16:40 – 16:55	Lei Zhou: A novel 3D numerical model to simulate the induced seismicity by hydraulic fracturing in HDR geothermal reservoir
16:55 – 17:10	XiangZhao Kong: Experimentally exploring permeability evolution induced by THMC-coupled processes
17:10	Closing Mark: ARMA and CUPB

## 六、Poster Presentation

<b>Drilling and Completion</b>	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
	Experimental study on the effect of filling rate and filling thickness on sand control effect and productivity of pre-filling sand control screens	Chengyun Ma
	Analytical model of collapse pressure in fracture zone based on hot dry rock concerning the effect of incompatible deformation	Yingtong Ju
	Supervised Classification by Support Vector Machines to Identify Formation Lithology Based on Drilling and Core Analysis Data	Masoud Rashidi
	Analysis of Cement Sheath Integrity in Thermal Wells Using Finite Element Method	Chengcheng Zhang



## 从传统水热系统到增强型地热能源：与油气工业共享技术

Hydraulic Fracturing	Effect of temperature recovery on time-dependent wellbore stability in geothermal drilling	Jian Zhang
	Effect of temperature variation on time-dependent wellbore stability in geothermal drilling	Jian 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
	Carbon Dioxide-Based Enhanced Geothermal System: A Review	Wei Zhang
	Induced Flow Channeling in Enhanced Geothermal Systems	Ali Ghavidel
	The comparative study on acid and alkaline chemical stimulation with Hot Dry Rock ( HDR ) rich of quartz-rich minerals	Bo Feng
	Development status of enhanced geothermal system	Hang Wen
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

## 从传统水热系统到增强型地热能源：与油气工业共享技术

	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
	Thermal Stability Effect of the Rheological Characterization of Friction Reducers on Hydraulic Fracturing Application	Mohammed Ba Geri
	Using Microfluidic Experiment to Study the Distribution of Oil and Water during the Shut-in Treatment	Xingyuan Liang
	A New Analytical Model for Transient Temperature Analysis of Fractured Geothermal Wells	Zhiming Chen
	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
	Exploration and Application of Water Shut-off Technology without Moving Production String in High Water Cut Wells	Jie Wang
	From Steaming Ground to Power Plant -- A Review on the Yangyi 16-MW Geothermal Project	Haibing Shao
	Molecular simulation research of the mechanical properties of hydrated clay-minerals with high temperature	Lizong Li
	US Department of Energy's Geothermal Technology Office and its project review	Chongxin Jiang
Reservoir Simulation and Reservoir Engineering	Research on the influence of thickness and test method on fracture characteristics of thin layered rock mass	Yizhao Jianyong Wang
	Simulating Hydraulic fracturing process in EGS by a dual-porosity model in Naturally or induced fractured formations	Yarlong Wang and 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
Experiments and Models	Thermal Conductivity Variation of Granite Subjected to Mechanical Damage	Zhengwei Li
CO2 and Environment	Thermal and Fluid Processes in Closed-Loop Geothermal System Using CO2 as Heat Transmission Fluid	Zixu Hu

## 从传统水热系统到增强型地热能源：与油气工业共享技术

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

### 七、组委会联系方式：

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## 附录

### 网页报名流程

**2019 ARMA-CUPB GEOTHERMAL INTERNATIONAL CONFERENCE**  
Host by China University of Petroleum-Beijing  
Aug. 5-8, 2019, Beijing  
www.arma-cupb.com

**1 Registration & Submission**

**4 login registration&submission system**

4 Email 邮箱  
Password 密码

2 Create a new account! 建立新账户  
5 Login 登录 Forget Password?

**3 Sign Up**

3 \*First name: 姓  
\*Last name: 名  
\*Email(login id): 邮箱  
\*Password: 密码  
\*Confirm Password: 确认密码

Register 注册  
Reset 重填

**Registration progress**

6 1、Improve or update personal information 填写个人信息  
8 2、Payment 查看付款方式  
9 3、Check the registration status 查看注册状态

**7 Improve personal information**

7 Perfect Information

Fields marked with \* are mandatory

\*First name:   
Middle Name:   
\*Last name:   
\*Email:   
\*Phone: 电话号码   
\*Institution: 单位   
Department: 部门   
\*Street address: 地址   
\*City: 城市   
State: 洲   
\*Country: 国家   
\*Postal Code: 邮编   
\*Moslem food: 清真食品  YES  NO  
\*Whether the accommodation: 住宿  YES  NO -Please choose Days:

Submit 提交  
Reset 重填