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Welcome to San Francisco

The organizers of the 51st U.S. Rock Mechanics Symposium welcome you to San Francisco! This is a special meeting as it is the twenty year anniversary of the American Rock Mechanics Association. The first meeting, held at Asilomar, CA had about 50 attendees. This year we expect more than 600 attendees from all over the world, with 470 papers accepted for our proceedings. The ARMA symposium has indeed become the international meeting of record for rock mechanics/rock engineering.

The papers are uniformly of high quality, and we are sure you all will gain tremendously from attending the sessions and visiting the posters and exhibitors. This is an opportunity to meet up with old friends and make new ones; hopefully do some business. There is a full suite of workshops, short courses, and very interesting tours and special activities.

We all owe all members of the organizing committee a hearty thanks for doing such a great job in a year with record submissions and headwinds.

Steven D. Glaser

Sarah Wilson

Haiying Huang

Acknowledgements

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General Information

Exhibit Hall – Colonial & Italian Rooms
- Sunday, 25 June, 2:00 pm - 5:00 pm Exhibit setup
- Sunday, 25 June, 7:15 pm - 9:00 pm Opening reception & Exhibits
- Monday, 26 June, 8:30 am - 4:30 pm Exhibits open
- Tuesday, 27 June, 8:30 am - 4:30 pm Exhibits open

Registration and Speaker Ready Room
Registration (pre-registration packet pick-up and online registration) is open during the following hours:
- Saturday, 24 June, 7:30 am - 10:00 am (workshops, short courses, technical tours, and symposium)
- Sunday, 25 June, 7:30 am - 9:00 pm
- Monday, 26 June, 7:30 am - 6:45 pm
- Tuesday, 27 June, 7:00 am - 6:30 pm
- Wednesday, 28 June, 7:00 am - 2:00 pm

The speaker ready room is located in the registration area. A laptop and projector will be available.

Short Courses
Two short courses are offered:
- Saturday and Sunday, 24-25 June
  8:30 am – 5:00 pm—Shale Gas GeoEngineering—Elizabethan C
- Sunday, 25 June,
  8:30 am – 4:30 pm—2D and 3D Modeling of Rock Fracturing Processes in Geomechanics—Hampton

Speaker's Breakfast
Please bring the appropriate ticket.
Podium speakers and session chairs are required to attend the speaker's breakfast on the day of the speaker's presentation, beginning at 7:00 am. Poster presenters are invited to attend the breakfast on the day of their presentation. Prior to breakfast, podium speakers should load their presentations via a portable USB storage device to the session laptop. In addition to uploading the presentation, podium speakers will be able to meet with session chair(s). Tables will be identified by session number. Speakers should bring 1

or 2 biographical sentences, so that the session chair can prepare an introduction.
Places and times (all 7:00 am – 7:50 am) are:
• Monday, 26 June, Roosevelt Room
• Tuesday, 27 June, Alexandra's
• Wednesday, 28 June, Alexandra's

Special Activities
There are four special activities offered:
• Sunday, 25 June, 11:45 am-4:15 pm—Alcatraz: "The Rock"
• Monday, 26 June, 9:00 am -1:45 pm—Magical Marin: Majestic Muir Woods and Sparkling Sausalito
• Tuesday, 27 June, 9:00 am-1:00 pm—San Francisco Highlights
• Wednesday, 28 June, 6:15-8:15 pm—Bridge Walk: Golden Gate Bridge at Sundown

Student Career Reception/ Jeopardy Contest
The Student Rock Jeopardy Contest will be held on Monday, 26 June in the Grand Ballroom from 6:00 pm – 7:00 pm.
Students registrants are invited to a reception on Tuesday, 27 June from 6:30 pm -7:20 pm in the Roosevelt Room. Recognized rock mechanics and geomechanics ARMA members will be available to discuss career options and other issues of concern to student members.

Technical Tours
There are two technical tours offered:
• Sunday, 25 June, 9:00 am - 4:00 pm—Stanford University Campus and Rock Mechanics Labs
• Thursday, 29 June, 8:00 am -6:00 pm—SLAC National Accelerator and US Geological Survey

Workshops
There are three workshops offered:
• Saturday, 24 June, 8:00 am-6:00 pm—Emerging Advances in Geomechanics—Elizabethan D
• Sunday, 25 June, 8:00 am – 5:00 pm—2017 Hydraulic Fracturing—California East
• Sunday, 25 June, 1:00 pm – 4:30 pm—Laboratory Geomechanics Testing—Yorkshire

Other Scheduled Meetings

- Saturday, 24 June, 3:00 pm – 6:00 pm—SedHeat Incubator Forum: Geothermal Battery Energy Storage (by invitation)—Board Room
- Sunday, 25 June, 8:30 am - 4:00 pm—ARMA Board of Directors meeting—Essex Room
- Sunday, 25 June, 4:30 pm – 5:30 pm (To be determined) ARMA Foundation Board of Directors meeting—Board Room
- Sunday, 25 June—Symposium Student Assistants To be determined
- Monday, 26 June, 12:30 pm – 1:30 pm—ARMA Publications Committee (lunch)—Victorian Room
- Monday, 26 June, 7:00 pm – 9:00 pm—ARMA Fellows Dinner —Farallon Restaurant, 450 Post Street
- Tuesday, 27 June, 12:30 pm – 2:00 pm—ARMA Future Leaders (lunch)—Hampton Room
- Wednesday, 28 June, 12:30 – 2:00 pm—Seattle and San Francisco Organizing Committees (lunch)—Hampton Room

Sponsors

The 51st U.S. Rock Mechanics/Geomechanics Symposium is pleased to acknowledge the following corporate sponsors. To all our sponsors, our sincere thanks.

Agapito Associates Inc., *Sponsor of the 27 June Symposium Awards Banquet*

Golder Associates, Inc., *Sponsor of three Coffee Breaks*

Itasca International Inc., *Sponsor of the Symposium Delegate Bags*

MTS Systems Corp., *Sponsor of the MTS Lecture and Opening Reception*

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Exhibitors

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Altair develops simulation technology to accelerate mechanical earth modeling while optimizing recovery designs, processes and decisions for improved field performance. The Geomechanics Director allows engineers and scientists, especially the rock mechanics and Geology teams in Oil and Gas companies, to build numerical models from subsurface geology quickly, accurately, and efficiently.

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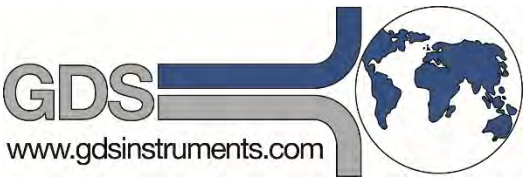
GCTS provides a full line of computer servo-controlled testing systems for rocks, soils, pavements, and construction materials. The company features Advanced systems for Triaxial, Direct Shear, Point Load, Indirect Tension, Hydraulic Fracture, Poly-Axial, Hollow Cylinder, Ultrasonic, and other specialized equipment including high-pressure/high temperature triaxial cells.



GDS Instruments

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GDS Instruments designs, develops and manufactures materials testing machines and software used for the computer-controlled testing of soils and rocks. This technology is used to evaluate the mechanical properties that are key in geotechnical and earthquake engineering design.

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Geomechanica develops innovative geomechanical simulation software (Irazu), provides simulation-aided consulting services for rock engineering applications, and offers rock mechanics laboratory testing services. Irazu is a general-purpose simulation package to model deformation and fracturing of geomaterials in petroleum, mining and civil engineering applications.

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MetaRock Laboratories, Inc. is a unique and diversely skilled geomechanics and special core analysis laboratory providing standard and customized testing and consulting services to aid operators in drilling, completion and field development of unconventional reservois. We also have a proven track record of development of testing equipment -- including HTHP testing, custom software for data integration and acoustic velocity, and anisotropy measurement as a function of stress.

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Rocscience Inc. was formed in 1996 in Toronto, Ontario, Canada. As a spin-off company from the University of Toronto, we have continued the evolution of ideas and technology, creating new software products in the field of geomechanics while maintaining a close connection to the research environment.

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Keynote Presentations

MTS Lecture
Sunday, 25 June, 6:30 pm - 7:15 pm

Vertical Stress Profiles and the Long-term Rheology of Rock Masses

François Henri Cornet, Professor Emeritus,
Institut de Physique du Globe de Strasbourg, France

The classical hydraulic fracturing method together with its various extension techniques provide very efficient means for determining in situ the complete stress tensor at various depths. When combined with focal mechanisms of induced seismicity, it may even be used to map spatial variations of pore pressure. The discussion of such a vertical stress profile, as obtained in the French Paris Basin sedimentary formations, will help us outline the importance of visco-elasticity on stress. In particular, it will help us demonstrate the role of pressure-solution on the local present-day stress field. This may have strong consequences for a better control of induced seismicity and more generally for the understanding of intraplate seismicity.

Keynote Address
Monday, 26 June, 10:00 am – 10:50 am

Seismicity-Permeability Coupling in Reservoirs and Caprocks

Derek Elsworth, Professor, Departments of Energy and Mineral Engineering and Geosciences, G³ Center and EMS Energy Institute, Pennsylvania State University, University Park, USA

Contemporary methods of energy conversions that reduce carbon intensity include sequestering CO2, fuel switching to lower-carbon sources—such as from gas shales, and recovering deep geothermal energy via EGS. In all of these endeavors, either maintaining the low permeability and integrity of caprocks or in

controlling the growth of permeability in initially very-low-permeability shales and geothermal reservoirs represent key desires. At short-timescales of relevance, permeability is driven principally by deformations – in turn resulting from changes in total stresses, fluid pressure or thermal and chemical effects. These deformations may be intrinsically stable or unstable, may result in aseismic or seismic deformation, and with resulting changes in permeability conditioned by the deformational mode. We report experiments and models to represent the respective roles of mineralogy, texture, scale and overpressures on the evolution of friction, stability and permeability in fractured rocks, and their consequences on fluid production, containment and induced seismicity.

Early Career Keynote Address

Monday, 26 June,1:20 pm – 2:00 pm

Stress and Pressure in Mudrocks Bounding Salt Systems

Maria Nikolinakou, Research Associate, Bureau of Economic Geology, University of Texas, Austin, USA

We study the evolution of stress and pore pressurein mudrocks that bound salt systems. Our evolutionary geomechanical modelscouple deformation with sedimentation and porous fluid flow. We find that highdifferential stresses arisenear rising diapirs and below salt. We show thatsalt emplacement induces significant excess pressures that are comparable tothe weight of the salt sheet. In addition, we show that the shear-inducedcomponent of the excess pressures issignificant. We also find that loweffective stresses result in low strength, which enables salt growth. We model saltas solid viscoplastic and sediments as poroelastoplastic materials, andcalibrate the consolidation properties based onexperimental testing on smectite-richmudrocks typical of those in the Gulf of Mexico. There is very limitedpublished application of transient models in the energy industry. We illustratethat our approach can be applied to design stable wellbores as well as to provideinsight into macroscale geologic processes. Overall, we show thattransient evolutionary models can predict stress and pore pressure in many geologicsystems where large strains, pore fluids, and sedimentationinteract.

Keynote Address
Tuesday, 27 June, 10:00 am – 10:50 am

Integrating Geomechanics in Unconventional Resource Development

David P. Yale, Yale Geomechanics Consulting, LLC, USA

The need of multi-stage hydraulic fracturing to make unconventional resources viable places the understanding of geomechanical properties and principles at the center of unconventional resource development. Whether it is geomechanical properties and in situ stress from petrophysics and geophysics for sweet spot evaluation, well placement and completion location, geomechanical and fracture modeling for completion design and fracture optimizations or geomechanical modeling and evaluation for fracture diagnostics and fracture/well interference, geomechanics is critical for optimal productivity and cost effective development of unconventional resources.

This talk will provide an overview of how geomechanics is used and the value it gives in the full life cycle of unconventional resource development and how we as geomechanists can help improve productivity in these reservoirs. With the current business model of many unconventional plays being the gaining of experience via a large number of wells, a focus on learning by the bit, many small operators, and rock-bottom operational costs,it forces a revamping of previous large field, deep well, and offshore geomechanics experience. However, the use of a few "data/science wells" with increasing use of "fracture diagnostics" and the critical data that can be mined from a large number of limited geoscience but high productivity diagnostic wells, it yields opportunities to integrate geomechanics for significant short term and especially long term productivity enhancement.

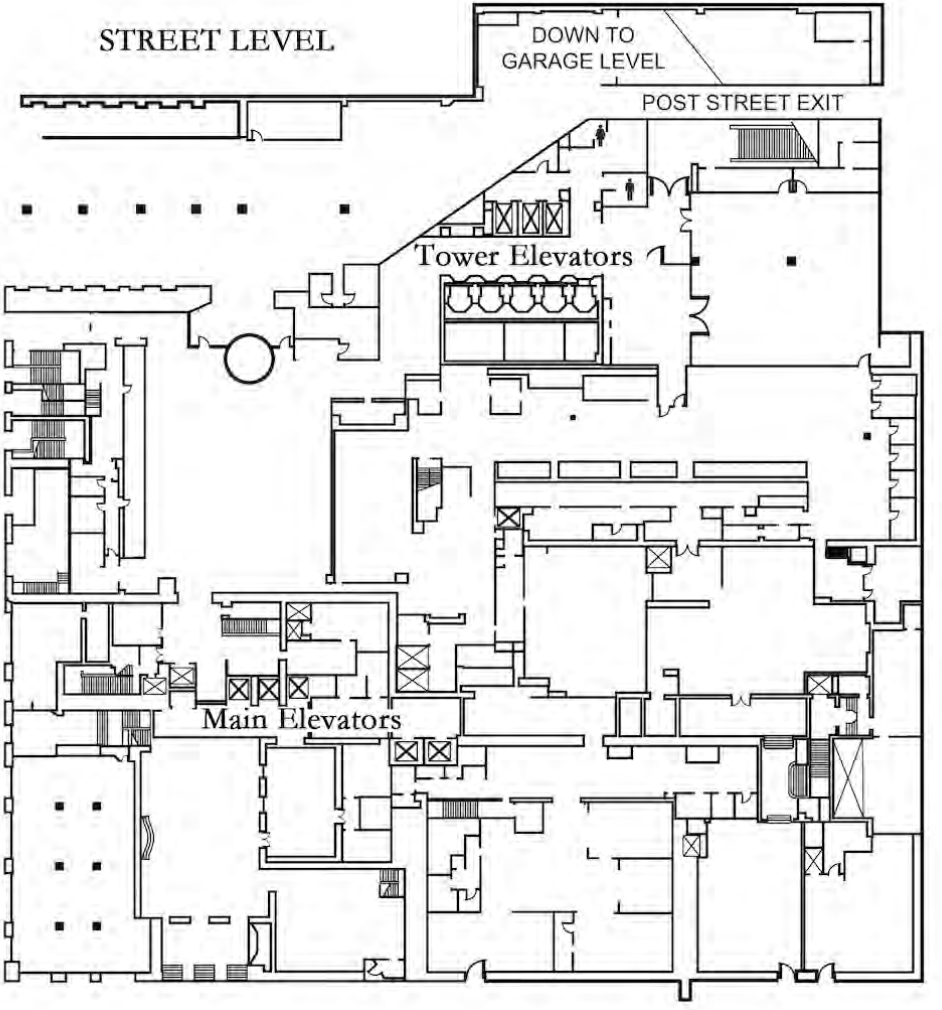
Keynote Address
Wednesday, 28 June, 10:00 – 10:50 am

Twenty-five Years of Seismic Tomography for Mine Rockmass Monitoring

Erik Westman, Professor, Mining and Minerals Engineering Department, Virginia Tech, Blacksburg, USA

This talk will describe case studies where seismic tomography has been used to better understand stress redistribution in underground mines. Examples from both coal and hardrock mines will be shared. Results show that this tool can complement existing tools (such as point-location geotechnical monitoring and numerical modeling) to help the engineer better design safe and efficient operations.

Floor Plans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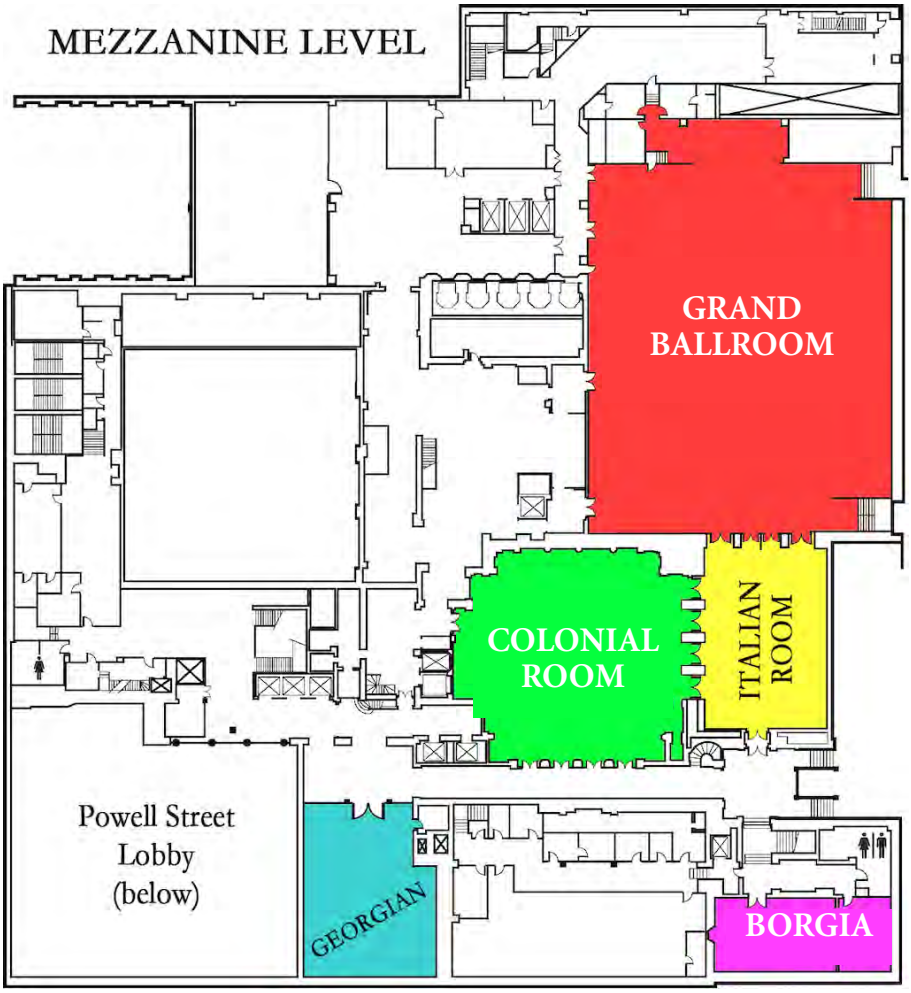
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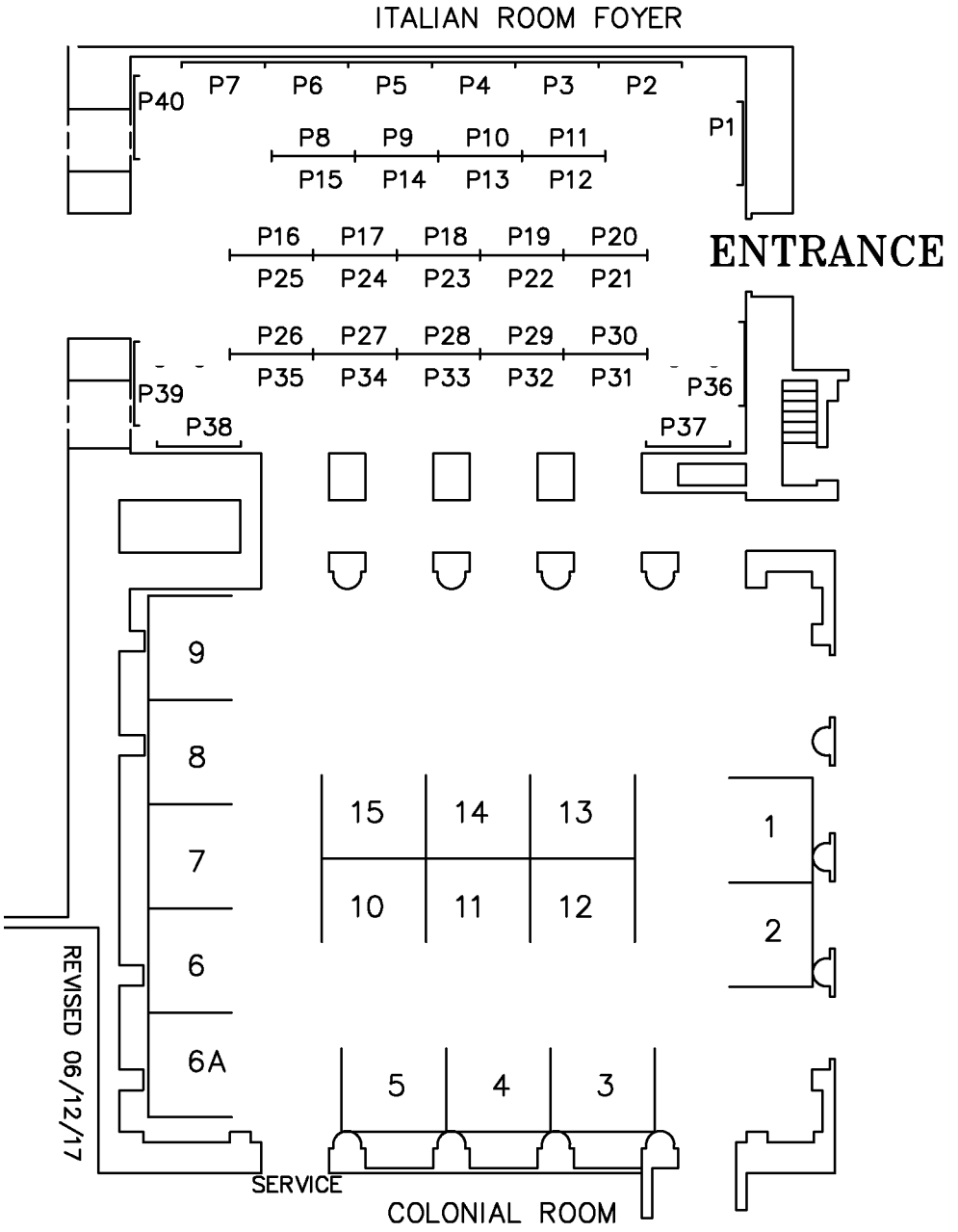
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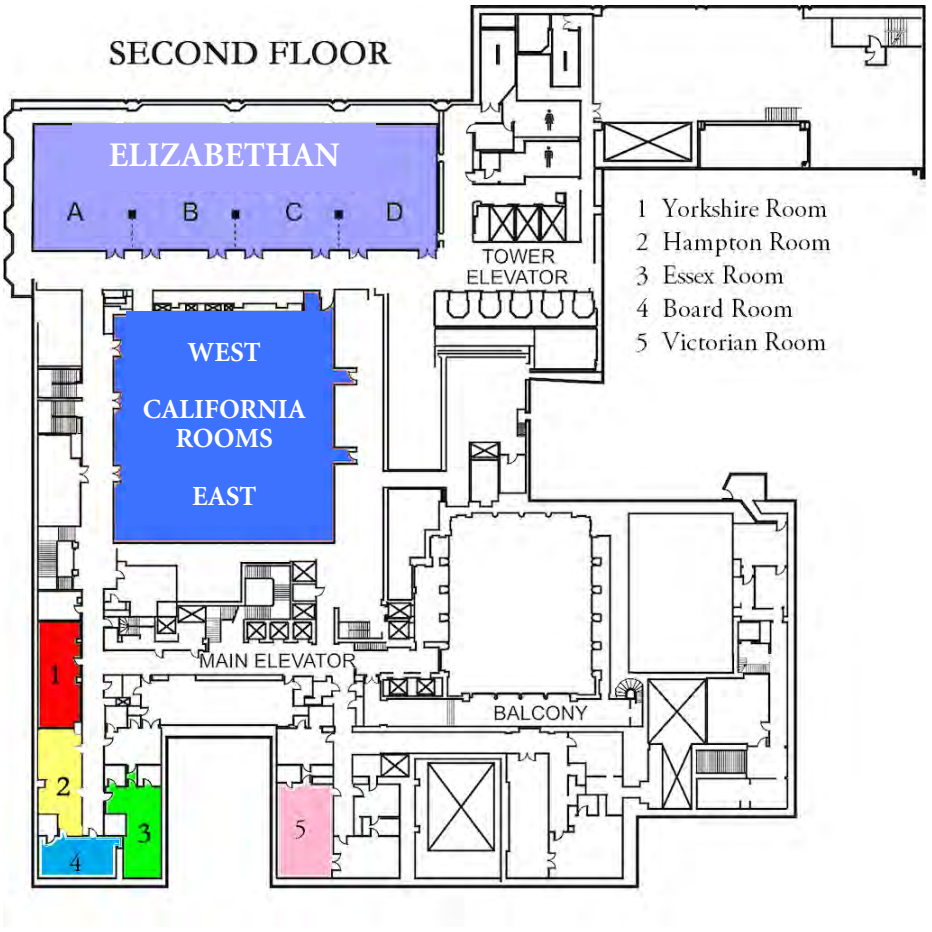
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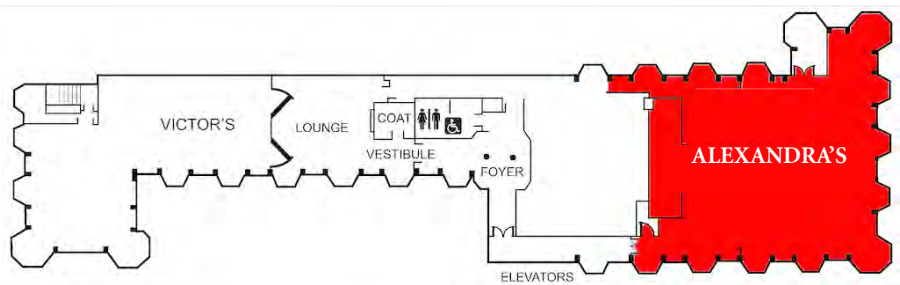
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ELEVATORS

32ND FLOOR

Monday, 26 June 2017				
Time	Track A Technical Session 1 – Elizabethan C&D Rock Excavation, Breaking, Dynamic Loading	Track B Technical Session 7 – California West Subsurface Stress, Pore Pressure and Integrity	Track C Technical Session 11 – California East Waste Disposal and CO_2 Sequestration	Track D Technical Session 15 – Elizabethan A&B Geology in Geomechanics
08:00 am-08:15 am	778 P. Hamdi A Review of the Application of Numerical Modelling in the Prediction of Depth of Spalling Damage around Underground Openings	154 K. Atefi Monfared Fluid Injection in Weakly Consolidated Reservoirs: Geo-mechanical Implications and Threats to Seal Rock Integrity	199 R. Makhnenko Clay-Rich Rocks As Barriers For Geologic CO_2 Storage	77 R. Pachytel Geomechanical Stratification In A Shale Reservoir And Its Correlation With Natural Fractures: Case From Pomeranian Basin (Poland).
08:15 am-08:30 am	469 Y. Liu Experimental Study of The Influence of Joint Geometric Configurations On The Dynamic Properties of Intermittent Jointed Rock Models Under Cyclic Uniaxial Compression	326 S. Osinga Geomechanical Response To N_2 Injection As A Means of Pressure Maintenance In A Sandstone Reservoir	302 C. Wang Weakening Effects of Microstructural Tribological Films In CO_2-Altered Reservoirs And Caprocks	608 J. Day The Influence of Mineralogy And Grain Scale Features In Healed Intrablock Structure On Direct Shear Properties In The Cobourg Limestone
08:30 am-08:45 am	535 W. Sun Numerical Simulation of Rock Fracturing By Carbon Dioxide Phase Transition	735 S. De Gennaro A Comprehensive 3d Geomechanical Model Used To Deliver Safe Hpht Wells In The Challenging Shearwater Field	587 G. Duveau Parametric Study of The Influence of Corrosion Phenomena On The Thermo-Hydro-Mechanical Response of Claystone	635 A. Małachowska Properties And Formation of Mineralized Veins In Organic-Rich Shale Formation
08:45 am-09:00 am	569 F. Marinelli Compaction localization in granular rocks: modeling grain-size effects	150 Y. Zhang Creep of Unconsolidated Sand Due To Delayed Grain Breakage	663 Z. Sun Discrete Element Modeling of Micro-Scratch Tests on Rocks Altered by CO_2	691 G. Christophe Accounting For Small Heterogeneity Lengthscale For The Upscaling of Rock Properties Measured On Core Samples
09:00 am-09:15 am	305 S. OH Determination of Mode II dynamic fracture toughness using short core compression (SCC) specimen	966 B. Verberne A Quantitative Microstructural Investigation of Depleted And Undepleted Reservoir Sandstones	836 A. Paluszny Evaluating Natural Fracture Growth in Shale Caprocks during Cold CO2 Injection at the Heletz pilot site	701 R. Goteti Deformation Of Siliciclastic Stringers In A Layered Evaporite Sequence: Insights From Geomechanical Forward Modeling And Implications For Structural Interpretation
09:15 am-09:30 am	53 M. Munkhchuluun Characterization Of Rock Mass Fragmentation For Cave Mining	1043 G. Volonté Advances In Geomechanical Subsidence Modeling: Effects Of Elasto-Visco-Plastic Constitutive Behaviour	478 J. Burghardt Geomechanical Risk Analysis For Geologic Carbon Sequestration	881 M. Heidari Geomechanical Effects Of A Highly Permeable Sand Layer In A Salt Basin

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08:45 am-09:00 am	569 F. Marinelli Compaction localization in granular rocks: modeling grain-size effects	150 Y. Zhang Creep of Unconsolidated Sand Due To Delayed Grain Breakage	663 Z. Sun Discrete Element Modeling of Micro-Scratch Tests on Rocks Altered by CO_2	691 G. Christophe Accounting For Small Heterogeneity Lengthscale For The Upscaling of Rock Properties Measured On Core Samples
09:00 am-09:15 am	305 S. OH Determination of Mode II dynamic fracture toughness using short core compression (SCC) specimen	966 B. Verberne A Quantitative Microstructural Investigation of Depleted And Undepleted Reservoir Sandstones	836 A. Paluszny Evaluating Natural Fracture Growth in Shale Caprocks during Cold CO2 Injection at the Heletz pilot site	701 R. Goteti Deformation Of Siliciclastic Stringers In A Layered Evaporite Sequence: Insights From Geomechanical Forward Modeling And Implications For Structural Interpretation
09:15 am-09:30 am	53 M. Munkhchuluun Characterization Of Rock Mass Fragmentation For Cave Mining	1043 G. Volonté Advances In Geomechanical Subsidence Modeling: Effects Of Elasto-Visco-Plastic Constitutive Behaviour	478 J. Burghardt Geomechanical Risk Analysis For Geologic Carbon Sequestration	881 M. Heidari Geomechanical Effects Of A Highly Permeable Sand Layer In A Salt Basin

Monday, 26 June 2017				
Time	Track A Technical Session 2 – Elizabethan C&D Coal Mine Ground Control	Track B Technical Session 8– California West Fracture Mechanics (1)	Track C Technical Session 12 – California East Laboratory and Field Measurements (1)	Track D Technical Session 16 – Elizabethan A&B Rock Mass, Fault and Fracture Characterization
11:00 am-11:15 am	217 U. Yasidu Effect of Humidity on Tensile Strength of Rocks in Selected Underground Coal Mines in Malawi	379 E. Dontsov Approximate Solutions For Radial And Plane Strain Hydraulic Fractures For Variable Injection Rates	389 J. Oglesby Comparison of Roughness Indices from Weathered, Differentially Weathered and Vuggy Profiles Obtained Using Laser Scanning and Photogrammetry	191 X. Zou The Full-Automatic Recognition of Structural Plane Parameters In Borehole Images From Actual Drilling Engineering
11:15 am-11:30 am	370 B. Kim Evaluation of Bumps-Prone Potential with Respect to the Spatial Characteristics of Cleat in a Coal Pillar under Highly Stressed Ground Conditions	399 A. Peirce Modeling The Effect of Turbulence On The Simultaneous Propagation of Multiple Parallel Hydraulic Fractures	415 K. Ng A Laboratory Experimental Study of Enhanced Geothermal Systems	339 W. Junkin Discrete Fracture Network Generation for the Äspö TAS08 Tunnel using MoFrac
11:30 am-11:45 am	444 G. Esterhuizen Application of a Brittle Failure Model to Assess Roof Stability in Coal Mine Entries	655 B. Goncalves da Silva Comparison between numerical and experimental observations made in hydraulic fracturing tests	724 L. Walle Laboratory Measurements of Strength Parameters for Fracturing	358 H. Farichah A Novel Equation to Determine Geometrical Representative Elementary Volume of Fractured Rock Mass
11:45 am-12:00 pm	532 K. Ma Development and Evaluation of PyFlexU2^{TM} Coating for Expandable Rock Bolt against Highly-corrosive Ground Conditions	727 S. Rho Finite-Element Simulations of Hydraulic Fracture Height Growth on Layered Mudstones with Weak Interfaces	813 J. Choi Permeability Testing Using Pressure Pulse Loading And The Consolidation Induced Transient Deformation	443 H. Sone Ductile Behavior of Thermally-Fractured Granite Rocks
12:00 pm-12:15 pm	886 P. Zhang Coal Rib Failure and Support in Longwall Gate Entries	763 V. Sesetty Simulation of Hydraulic Fracture Clusters Considering Viscosity- and Toughness-Dominated Propagation	158 H. Masoumi An Improvement To Unified Size Effect Law For Intact Rock	636 P. Adler Wave Propagation In A Medium With Cavities
12:15 pm-12:30 pm	888 M. Gadde In-situ Behavior of Weak Immediate Floor Materials in the Illinois Basin Underground Coal Mines	350 R. Pramanik Numerical Simulation of Fracture Propagation in Layered Rock	677 Y. Xu Investigation of scalping on shear strength of aggregates	1034 C. Chaparro Rock Cut Design and Construction Optimization for the Trans-Canada Highway 1 - Pritchard to Hoffman's Bluff Segment in British Columbia, Canada

Monday, 26 June 2017				
Time	Track A Technical Session 3 – Elizabethan C&D Mining Geomechanics	Track B Technical Session 9 – California West Fracture Mechanics (2)	Track C Technical Session 13 – California East Laboratory and Field Measurements (2)	Track D Technical Session 17 – Elizabethan A&B Induced Seismicity
2:00 pm-2:15 pm	11 C. Newman A New Web-based Platform for Ground Control Computer Applications	67 L. Douma The Influence of Rock-Mechanical Properties on the Fracture Characteristics in Finely-Layered Reservoirs	8 L. Louis A New Model for Failure and Yield Envelopes of Anisotropic Porous Sandstone	270 C. Lima Deciphering injection-induced seismicity: a conceptual model for explaining discrepancies between Oklahoma and North Dakota activities
2:15 pm-2:30 pm	174 S. Sinha Insight into Hard Rock Pillar Behavior from Numerical Simulation Using a Progressive S-Shaped Failure Criterion	111 W. Jin Non-Local Micromechanical Anisotropic Damage Modeling for Quasi-Brittle Materials: Formulation and Implementation	854 F. Ferreira From Lab to Field: Rock Mechanical Properties Assessment for a 3D MEM	973 S. Lele Fault Reactivation due to Stress and Pressure Changes from Hydraulic Fracturing
2:30 pm-2:45 pm	320 D. Guner Isothermal Creep Behaviour Investigation of Thin Spray-on Liners	596 S. Norouzi A Micromechanical Model for Studying the Effect of Ductility and Micro-Crack Intensity on Rock Strength Characteristics	866 N. Bozorgzadeh Robust Estimates of Rock Strength Parameters Via Improved Analysis of Rock Strength Data	297 Y. Fang Can Mineralogical Composition Predict Frictional Strength, Stability and Shear Permeability Evolution of Fractures?
2:45 pm-3:00 pm	814 J. VallejosDevelopment of new design tools for open stoping underground mines	679 R. Abedi Mixed-mode dynamic crack propagation in rocks with contact-separation mode transitions	182 M. Ramos Stress-Dependent Dynamic-Static Transforms of Anisotropic Mancos Shale	98 C. Zhu The effect of variable fluid injection rate on the stability of seismogenic faults
3:00 pm-3:15 pm	1022 M. Kgwete Review of stope support design for a shallow platinum mine: a Bushveld Complex case study	686 N. Barton Extension Failure Mechanisms Explain Failure Initiation in Deep Tunnels and Critical Heights of Cliff-Faces and Near-Vertical Mountain Walls	717 L. Frash Permeability of Fractures Created by Triaxial Direct Shear and Simultaneous X-Ray Imaging	490 L. Shen Modelling fault movement triggered by fluid injection using Cohesive Zone Method
3:15 pm-3:30 pm	1031 J. Vivas Combinaning Traditional Core Logging and Televiewer Imaging to Target Fractures for Grouting Purposes - Advantages and Disadvantages.	696 K. Kishida Evaluation of cutoff time on slide-hold-slide process of single rock joint in consideration of the heating influence	938 Y. Xing Subcritical Fracture Process of Sandstone with AE Energy Analysis	355 B. Wassing The impact of visco-elastic caprock on fault reactivation and fault rupture in producing gas fields

Monday, 26 June 2017				
Time	Track A Technical Session 6 – Elizabethan C&D Numerical Modeling in Mining	Track B Technical Session 10 – California West Fracture Mechanics (3)	Track C Technical Session 14 – California East Laboratory and Field Measurements (3)	Track D Technical Session 18 – Elizabethan A&B Coupled Processes (1)
04:30 pm-04:45 pm	156 M. Valerio Evaluation of Rock Bridging through DFN Models to Improve Pit Slope Design in the Absence of Joint Persistence Data	873 S. Morgan Effect of Injection Rate on Hydraulic Fracturing of Opalinus Clay Shale	72 M. Ingraham Bifurcation Theory Applied To Granite Under General States of Stress	106 T. Orlander Temperature Effects on Stiffness Moduli of Reservoir Sandstone from the Deep North Sea
04:45 pm-05:00 pm	238 I. Tulu Verification of a Calibrated Longwall Model with Field Measurements	138 A. Cagnola Microstructural Evolution of Organic Matter-Rich Shales by Ionic Solutions	733 H. Krietsch Stress Measurements in Granite: Comparison of Overcoring, Hydraulic Fracturing and Induced Seismicity Results.	296 Y. Jia Hydro-Mechanical-Chemical Effects on Permeability Evolution of Fractures in Longmaxi Shale
05:00 pm-05:15 pm	531 V. Urli Estimating stope hangingwall sloughage using a hybrid DFN-DEM numerical model	200 Q. Lu Impact of Fluid Acidity on the Time-Dependent Initiation of Hydraulic Fractures in Carbonate Rocks	928 S. Nakagawa Laboratory Visualization of Hydraulic Fracture Propagation Induced by Variable-Rate Fluid Injection Within Analogue Rock Samples Containing Preexisting Fractures	1049 P. Fu Thermo-Hydro-Mechanical Responses of Fractured Diatomite Formation to Steam Injection
05:15 pm-05:30 pm	634 F. Gao Numerical simulation of roadway squeezing due to time-dependent strength degradation	233 T. Tran Application of Pga Fiber and Fluid-Loss Controlling Materials To Slick Water Fracturing	962 M. Jalali Mechanical, Hydraulic and Seismological Behavior of Crystalline Rock as a Response to Hydraulic Fracturing at the Grimsel Test Site	573 T. Wanninger Experimental Investigations On The Self-Sealing Of Anhydritic Rock
05:30 pm-05:45 pm	895 B. Yu Laboratory Testing of Casing-Cement Interface and Multi-Scale Modeling of Casing Integrity within Salt	75 Y. Tang Proppant Effect on Rock Shear Resistance and Its Corresponding Influence on Proppant Behaviour	308 J. Ding Microcrack Network Development in Salt-Rock During Cyclic Loading at Low Confining Pressure	603 J. Carey Stress Cycling and Fracture Permeability of Utica Shale using Triaxial Direct-Shear with X-ray Tomography
05:45 pm-06:00 pm	494 P. Feng DEM Investigation on the Fracture Mechanism of the Cracked Chevron Notched semi-circular Bend Specimen	505 W. Cheng Numerical Simulation on Hydraulic Fracturing in the Discrete-Fracture-Network Reservoir with DDM and Graph Theory	784 O. AlDajani Vaca Muerta Shale - Basic Properties, Specimen Preparation, and Fracture Processes	638 C. Mézon 3d Natural Convection In A Fractured Porous Medium : Influence Of Fracture Network Parameters And Comparison To An Homogeneous Approach.

Tuesday, 27 June 2017				
Time	Track A Technical Session 19 – Elizabethan C&D Drilling Mechanics (1)	Track B Technical Session 25 – California West Hydraulic Fracturing Case Studies (1)	Track C Technical Session 29 – California East Imaging Technologies for Geomechanics	Track D Technical Session 33 – Elizabethan A&B Slope Stability, Foundation and Dams (1)
08:00 am-08:15 am	468 R. Martin Core analysis workflow for evaluation of geomechanical heterogeneity and anisotropy in an Oligocene shale from the Gulf of Mexico	95 M. AlTammar Laboratory Observations of the Effect of Pore Pressure on Hydraulic Fracture Growth	311 F. Rassouli Shale rock characterization using multi-scale imaging	292 E. Tanrıseven Effect of Ponded Water Level on Stability of a Tailings Dam
08:15 am-08:30 am	147 G. Alshubbar The Effect of Barite Nanoparticles on the Friction Coefficient and Rheology of Water Based Mud	585 D. Zhou Effects of super-critical CO_2 phase change on dynamic multi-fracturing process in reservoir stimulation	496 F. Pourahmadian Real-time monitoring of heterogeneous fractures in rock: an experimental study	368 G. Raptis Excavation and Stability of a Stilling Basin Rock Slope in Neelum Jhelum HEP, Kashmir, Pakistan
08:30 am-08:45 am	345 M. Nikolinakou Pore-Pressure Prediction Beneath Salt Sheets	641 R. Abedi A numerical study on the effect of loading and randomness on fracture patterns in a tight formation	698 R. Holt Digital rock mechanics: a discrete way of approaching failure	486 I. Hundal An Investigation into Factors Contributing to Movement of a Slow-Moving Rockslide at the Revelstoke Dam, British Columbia
08:45 am-09:00 am	492 A. Mansour Smart Lost Circulation Materials for Wellbore Strengthening	725 D. Lee Effect of Fluid Rheology on Proppant Transport in Hydraulic Fractures in Soft Sands	991 Y. Polsky Neutron Diffraction Measurement of Pore Pressure Influence on Lattice Strains in Geological Materials	761 N. Sokol, PG Telegraph Hill Rock Slope Improvements
09:00 am-09:15 am	706 Z. Zhou Influence of Drilling Fluid with Solid Plugging Materials on Stress Intensity Factor When Drilling in Naturally Fractured Formations	770 Y. Lou Study on Distribution of Acoustic Emission and Inelastic Region in Hydraulic Fracturing	1004 L. Louis Heterogeneity and Damage Mapping in Geomechanical Evaluation of a Shallow Reservoir Sandstone Using X-Ray CT Imaging	1011 C. Hunt Case Study of Rock Slope Remediation at Mayo 'A' Powerhouse, Yukon, Canada
09:15 am-09:30 am	882 K. Liu Wellbore Stability Analysis under Drained Conditions Using Anisotropic Cam Clay Model	857 K. Su Experimental Study of Hydromechanical Behavior of Fracture of Vaca Muerta Gas Shale	776 L. Kong Rock Physics and Geomechanics of 3-D Printed Rocks	208 M. Weng Characterizing dip slope deformation by centrifuge model test and DEM simulation

Tuesday, 27 June 2017				
Time	Track A Technical Session 20 – Elizabethan C&D Drilling Mechanics (2)	Track B Technical Session 26 – California West Hydraulic Fracturing Case Studies (2)	Track C Technical Session 30 -- California East Geophysics in Geomechanics	Track D Technical Session 34 – Elizabethan A&B Slope Stability, Foundation and Dams (2)
11:00 am-11:15 am	31 T. MA Fracture Initiation Pressure Analysis of Horizontal Well in Anisotropic Formations	13 A. Alzahabi Horizontal Completion Fracturing Techniques Using Data Analytics: Selection and Prediction	362 S. Shreedharan Characterization of Acoustic Emission From Laboratory Stick-Slip Events in Simulated Fault Gouge	630 S. Miki Water Flow and Rock Mass Coupling Analysis of Debris Flow on a Rock Slope by DDA and MPS (Moving Particle Simulation) Method
11:15 am-11:30 am	96 G. Shen Geomechanics-Based Wellbore Trajectory Optimization for Tight Formation with Natural Fractures	122 N. Alqahtani 3D Finite Element Modeling of Thermally-Induced Stress During a Cryogenic Fracturing Experiment	411 A. Modiriasari Use of Seismic Wave Conversions (S-to-P wave) to Monitor Shear Crack Growth	650 X. Cheng A New Software for Block Theory and its applications in rock engineering
11:30 am-11:45 am	826 X. Li Investigation of Wellbore Breakouts in Deviated Wells - a 3D Numerical Modeling Approach	382 K. Kim Discrete modeling of fluid-driven fracture processes in anisotropic rock formations	664 D. Yale Conversion of Dynamic Mechanical Property Calculations To Static Values for Geomechanical Modeling	1005 T. Mametja Slope Stability Enhancement Through Slope Monitoring Data Interpretation
11:45 am-12:00 pm	416 S. Rafieepour Experimental Study of Reservoir Stress Path and Hysteresis During Depletion and Injection Under Different Deformational Conditions	572 X. Zhang A New Pseudo-3D Model for Hydraulic Fracturing in Multilayered Rocks	734 J. Moore Estimating Rock Mass Elastic Modulus From Seismic Resonance Measurements	658 T. Wang DEM Modeling of the Dynamic Response Analysis of a Jointed Slope
12:00 pm-12:15 pm	855 O. Razavi Characterization of Naturally Fractured Reservoirs using Drilling Mud Loss Data: the Effect of Fluid Leak-Off	720 D. Klimenko Modeling Hydraulic Fractures Propagation Considering Changing in the Primary Energy Loss Mechanism.	82 K. Bansah Multichannel Analysis of Surface Waves: Estimating Depth to Bedrock and Acoustic Properties in Karst Terrain	732 G. Shi Contact Theory for Block Sysyems
12:15 pm-12:30 pm	976 E. Alkamil A Novel Approach to Predict Collapse Volume Using Image Processing	123 B. Figueiredo Study of the Influence of Pre-Existing Bedding Planes and Faults on Hydraulically Induced Fracture Propagation in Shale-Gas Reservoirs	294 B. Baizhanov Coupled Novel Geomechanical, Acoustic and Permeability Measurements under True Triaxial Stress State in Berea Sandstone	209 A. Galaa Compression Characteristics of Resedimented Nile Silty Clay

TUESDAY TECHNICAL PROGRAM

Tuesday, 27 June 2017				
Time	Track A Technical Session 21 – Elizabethan C&D Drilling Mechanics (3)	Track B Technical Session 27 – California West Hydraulic Fracturing Case Studies (3)	Track C Technical Session 31 -- California East Geomechanics in Geothermal Processes	Track D Technical Session 35 – Elizabethan A&B Slope Stability in Mines
02:00 pm-02:15 pm	216 M. Sheng Experimental Study on Rock Failure of Organic-Rich Shale Caused by Waterjet Impinging	642 R. Abedi Simulation of Refracture and Contact Mode Transitions in Tight Formations	780 C. Oldenburg Overview of the kISMET Project on Intermediate-Scale Hydraulic Fracturing in a Deep Mine	236 C. Sampaleanu Characterizing Brittle Fracture Induced Rockfall in an Open Sub-Level Retreat Excavation
02:15 pm-02:30 pm	282 S. Tian Experiment and SEM Analysis on Rock Breaking Mechanism by Swirling-Round SC-CO_2 Jet	1046 D. Walters Induced Fracture Monitoring and Characterization for a Thermal Fracturing Process	651 H. Wang In-Situ Stress Measurement at 1550-meters depth at the kISMET Test Site in Lead, S.D.	246 J. Danielson The Use of Specific Energy for Fault Mapping in an Open Pit Mine
02:30 pm-02:45 pm	534 U. PRASAD Formation Specific Size Correction for Strength (UCS) on Rotary Sidewall Cores	541 P. Ruciński 1-D Geomechanical Modelling Vs. Hydraulic Fracturing Results, Examples From Unconventional Lublin Basin, Poland	176 J. Ter Heege Discrete Element Modelling of Wellbore Integrity in High Temperature Geothermal Reservoirs	401 H. Saroglou Predicting the Primary Impact and Total Roll-Out Distances of Rock Falls Based on Cases in Quarries and Mines in Australia and the United Kingdom
02:45 pm-03:00 pm	591 M. Tahmeen Complete Geomechanical Property Log from Drilling Data in Unconventional Horizontal Wells	884 N. Nagel On the Potential Influence of Stress Shadows in Stacked Plays	192 P. Fokker Thermo- Poro- Elastic Stressing and Time-Dependent Earthquakes Nucleation: a Semi-Analytical Injection Model	877 C. Griffiths Evaluation of the Influence of Uncertainty Between Predicted and Measured Ground Water and In-Situ Stress on the Stability of a Large Open Pit Using a Three Dimensional Distinct Element Method
03:00 pm-03:15 pm	858 E. Rossi The Effects of Flame-Heating on Rock Strength: Towards a New Drilling Technology	913 K. Kirane Numerical Modeling of the Step Rate Test Using Fully Coupled Hydraulic Fracturing Capabilities	371 J. Morris Application of Energetic Stimulation at High Temperature and Pressure for Deep Geothermal Reservoirs	1030 R. Barnett Geomechanical Characterization of a Sheared Coal Seam and Implications for Open Pit Slope Design
03:15 pm-03:30 pm	885 T. Defoort 3D Finite Element Modeling of Rock Cutting	1012 K. Xia Understanding Stress Reorientation Process in Shale Gas Play and Its Impact on Refracturing Time Window Play and Its Impact on Refracturing Time Window	902 Q. Cheng Numerical Modeling of Fluid Flow, Heat Transfer and Induced Mircoseismicity in Three Dimensional Fracture Networks	1045 W. Dershowitz Step Path Rock Bridge Percentage for Analysis of Slope Stability

Tuesday, 27 June 2017				
Time	Track A Technical Session 24 – Elizabethan C&D Deep Mine Geomechanics	Track B Technical Session 28 – California West Near-wellbore Processes	Track C Technical Session 32 – California East Rock for Art and Architecture-Building Materials	Track D Technical Session 36 – Elizabethan A&B Foundations and Dams
04:30 pm-04:45 pm	9 J. Oke Improving Hard Rock Pillar Design by Including Rock Mass Classification and Failure Mechanisms	164 F. Pereira Wellbore Integrity Assessment Considering Casing-Cement-Formation Interaction Based on a Probabilistic Approach	372 X. Wang Research on Stability Monitoring and Reinforcement of the Dunhuang Mogao Grottoes Based on Risk Assessment of Cliff Stability	334 L. Tan Experimental Study on Effect of Strong Earthquake Duration on Dynamic Response of Gravity Dam
04:45 pm-05:00 pm	37 D. Chambers Improving a Deep Metal Mining-Induced-Seismicity Catalog Using Numerical Optimization	325 M. Chertov Numerical Modeling of Failure in Poroelastic Rocks Sensitive to Pressure Drop Rate	387 N. Hudyma Tensile Strength Properties of Coquina - Historic Building Stone from the First Coast of Florida	456 R. Hashimoto Numerical Study on Bearing Capacity Characteristics of Masonry Platform Structure for Different Stone Thickness
05:00 pm-05:15 pm	214 W. Cao Modelling the Influence of Heterogeneity on Microseismic Characteristics in Longwall Coal Mining	688 R. Holt Ultrasonic Properties of Creepy Shales	460 E. Troyer Biomineralized Art: Using Microbes and Minds to Make Mountains	549 W. Pariseau Design Guidelines for Foundations on Jointed Rock
05:15 pm-05:30 pm	646 C. Mborah Applications of the Acoustic Emission/Microseismic Monitoring Technique in the Mining Industry Applications of the Acoustic Emission/Microseismic Monitoring Technique in the Mining Industry	818 A. Bauer Can Heating-Induced Creep Result in Shale Barriers for P&A Applications?	348 X. Xie Long-Term Creep Prediction With a Modified Power Law Model	1000 A. Majdi Prediction of Minimal Rock Mass Grouting Pressure Based on Newton's Second Law and Principles of Fracture Mechanics
05:30 pm-05:45 pm	890 A. Baig Temporal Changes in Stress State in S Sill Pillar Imaged Through Seismic Tomography	352 Y. Feng Modeling Near-Wellbore Hydraulic Fracture Complexity Using Extended Finite Element Method	769 T. Hoeink Shale Discrimination with Machine Learning Methods	897 D. Graham Limit Loads for Pipelines and Cylinders Partially Embedded in Frictional Materials
05:45 pm-06:00 pm	1042 E. Poeck A Numerical Analysis Correlating a Mining Induced Seismic Event with Released Kinetic Energy	510 P. Zhao Modeling Lost Circulation and Assessing Enhanced Propagation Resistance by Fracture Sealing	568 X. Shen Experimental Characterization of Microstructure Development for Calculating Fabric and Stiffness Tensors in Salt Rock	863 M. McCray Two Methods for Development of Rock Shear Strength Parameters for Risk-Informed Evaluation of Concrete Gravity Dams Founded on Clean Discontinuous Rock

Wednesday, 28 June 2017				
Time	Track A Technical Session 37 – Elizabethan C&D Sand Control Management	Track B Technical Session 41 – California West Interaction of Induced and Natural Fractures (1)	Track C Technical Session 45 – California East Computational Geomechanics (1)	Track D Technical Session 49 -- Elizabethan A&B Rock Properties for Underground Excavation
08:00 am-08:15 am	231 Y. Suan A DEM Strategy for Modeling Fluid Injection in an Unconsolidated Medium	319 J. Wang Hydraulic Fracturing with Leakoff in a Dual Porosity Medium	223 D. Potyondy Simulating Perforation Damage With a Flat-Jointed Bonded-Particle Material	64 D. Labrie Frictional Properties of Rocks As a Function of Rock Type, Specimen Size and Confining Pressure
08:15 am-08:30 am	600 J. Fuller Balancing Productivity and Sanding Risk in Weak Sandstones Through a Size Dependent Approach	404 J. Kear 2D Experimental and Numerical Results for Hydraulic Fractures Interacting With Orthogonal and Inclined Discontinuities	437 D. Johnson Micromechanical Modeling of Rate and State Frictional Behavior of Fault using the Discrete Element Method	321 S. Ogata Numerical Modeling of Coupled THMC Processes for Predicting Fluid Flow and Transport Behavior Within Fractured Rocks
08:30 am-08:45 am	705 G. Wong Injector Completion Performance under Hydraulic Fracturing and Matrix Flooding Conditions into a Sand Pack	555 S. Green Hydraulic Fracture Propagation in Steps Considering Different Fracture Fluids	788 G. Chen Mechanism Analysis of Earthquake Induced Extreme Motions	430 C. Langford Assessing Stress Conditions for Coast Range Tunnels in British Columbia
08:45 am-09:00 am	796 F. Gui Numerical Sanding Risk Assessment Considering Cement Bond Coverage	593 M. Haddad Mechanistic Simulation of Multi-Stage, Multi-Wellbore Hydraulic Fracturing in Naturally Fractured Reservoirs	517 L. Jin Modeling Dynamic Shear Rupture and Microseismic Source Responses on Discontinuities Induced by Quasi-Static Flow-Driven Stress in Fractured Porous Media	522 D. Rebuli Seismic Wave Velocity Measurements in an Underground Canadian Mine
09:00 am-09:15 am	624 J. Dudley Modeling Time-Scaling Creep Deformation of Unconsolidated Sand	741 O. Kresse Modeling the Effect of Fracture Interference on Fracture Height Growth by Coupling 3D Displacement Discontinuity Method in Hydraulic Fracture Simulator	50 W. Rui Numerical Modeling of Three-Dimensional Hydraulic Fracture Containment in Layered Tight Gas Reservoir	815 M. Petruzalek Ultrasonic Method for Estimation of Crack Initiation Stress
09:15 am-09:30 am	740 M. Oyarhossein Low-Rate Injection and Stimulated Zone Geometry	957 Y. Wang Induced Stresses and SRV Calculation near a Hydraulic Fracture in the Naturally Fractured Reservoir	747 K. Chun Numerical Analysis of Thermal Crack Growth Due To Cold-Water Injection Using the Boundary Element Method	968 M. Lagger In-Situ Characterization of Backfill at Mechanized Driven Tunnels in Hard Rock Using a Novel Testing Device - First Applications

Wednesday, 28 June 2017				
Time	Track A Technical Session 38 – Elizabethan C&D Drilling Mechanics (4)	Track B Technical Session 42 – California West Interaction of Induced and Natural Fractures (2)	Track C Technical Session 46 – California East Computational Geomechanics (2)	Track D Technical Session 50 -- Elizabethan A&B Underground Storage and Structures (1)
11:00 am-11:15 am	70 S. Akhtarmanesh Application of Differential Evolution To Predict Wellbore Strengthening From Drilling Fluid Containing Nanoparticles HPHT Filtration Test Results	237 K. Shrivastava Local Linearization Method for Efficient Solution of Coupled Fluid Flow and Geomechanics Problem	28 W. Li Micromechanical Modeling of Impact of Temperature on Salt Rock Creep Behavior	1032 C. Hunt Maintaining Quality Control in the Preparation of Geotechnical and Geological Mapping for Hard Rock Tunneling Projects
11:15 am-11:30 am	263 C. Wenke Wellbore Stability Analysis Based on the Fully Coupled Non-Linear Chemo-Thermo-Poroelastic Theory in Shale Formation	363 W. Yan Experimental Study of the Mode-I Fracture Toughness on Sichuan Basin Gas Shale under Air Dried and Water Saturated Conditions	101 Y. Peng Advances in Geomechanics of Coal-Gas Interactions	398 H. Yang Characteristics of the Weak Rock at Regional Connector Project in Los Angeles
11:30 am-11:45 am	279 Z. Lyu Experimental Study on Specific Energy of Thermal Spallation Drilling Technology	762 V. Sesetty Complex Fracture Network Model for Stimulation of Unconventional Reservoirs	108 W. Jin Modeling of Tensile and Compressive Damage in Layered Sedimentary Rock: a Direction Dependent Non-Local Model	1029 W. Chu The High Stress Failure and Stability Assessment in Large Underground Powerhouse Caverns
11:45 am-12:00 pm	332 E. Fjær Scaling Issues in Hollow Cylinder Tests on Shale	943 J. Hampton Damage Characterization Due To Microcracking Near Coalesced Hydraulic Fractures With Acoustic Emission	715 M. Rongved Numerical simulations of fracture reorientation in the vicinity of a producer	917 E. Khosravi Influence of Temperature and Anisotropy on Creep Behavior of Mancos Shale
12:00 pm-12:15 pm	820 D. Shirole Active Ultrasonic Monitoring of Rocks Under Uniaxial Compression	1016 A. Kamali Reservoir Stimulation in Naturally Fractured Poroelastic Rocks	974 D. Roberts Adaptive Finite Element Modeling of Structure and Stress Evolution in Regions Experiencing Transtensional Deformation	172 R. DAS Analysis of Deformational Behavior of Circular Underground Opening in Soft Ground Using Three-Dimensional Physical Model
12:15 pm-12:30 pm	994 T. Scott Jr. Monitoring the Growth of Hydraulic Fractures with Fiber Optic Strain Technology	1006 L. Cruz Influence of Faults and Natural Fractures on Fracture Stimulation in the Vaca Muerta Formation Using Full 3D Modeling	1050 V. Chau Constitutive Model for Shale	479 O. Aydan The Possibility of Infrared Camera Thermography for Assessing the Real-Time Stability of Tunnels Against Rockburst

Wednesday, 28 June 2017				
Time	Track A Technical Session 39 – Elizabethan C&D Perspectives on Changing Rock Properties	Track B Technical Session 43 – California West Integrated Reservoir Geomechanics (1)	Track C Technical Session 47 – California East Computational Geomechanics (3)	Track D Technical Session 51 -- Elizabethan A&B Underground Storage and Structures (2)
02:00 pm-02:15 pm	303 H. Jung Chemo-Poromechanical Properties of Tuscaloosa Sandstone: Implications on CO_2 Geological Storage	451 M. Davison Plugging and Abandonment of Oil and Gas Wells: a Geomechanics Perspective	144 D. Chuprakov Continued Hydraulic Fracture Growth After Well Shut-In	271 A. Balasan Avanessian A Numerical Study of Pipe Roofing Umbrella Arch Pre-Reinforcement Method in Tunnels (A Case Study: Tunnel No.10 of the Ghazvin-Rasht Railroad)
02:15 pm-02:30 pm	378 P. Behnoud far Inverse Problem Theory to Estimate Thermo-Poroelastic Parameters: an Analytical/ Experimental Approach	42 D. Gala Effect of Fluid Type and Composition on Changes in Reservoir Stresses due to Production: Implications for Refracturing	230 Y. Ma Tensile Strength Calibration in DEM Modeling	353 C. Zhu Numerical Study of Thermo-Mechanical Effects on the Viscous Damage Behavior of Rock Salt Caverns
02:30 pm-02:45 pm	324 B. Orlic Geomechanical Responses Induced by Large-Scale Co_2 Injection in a Multilayer Saline Aquifer in Kuwait	347 J. Lu Geomechanics-Based Stochastic Analysis of Microseismicity for Analysis of Fractured Reservoir Stimulation with Application to Newberry EGS	567 W. Li Discrete Modeling of the Fracture-Permeability Behavior of Shale	448 T. Wang DEM Modeling of the Stability of the Jurong Underground Powerhouse
02:45 pm-03:00 pm	868 J. Stormont Gas Permeability of Granular Salt During Consolidation	626 X. Shi Development Prospect of Salt Cavern Gas Storage and New Research Progress of Salt Cavern Leaching in China	643 P. Clarke Fracture Modeling of Rocks Based on Random Field Generation and Simulation of Inhomogeneous Domains	644 D. Culp Multiphysics Simulations of Fracture using Phase Field
03:00 pm-03:15 pm	979 H. Liu Size Effect of Fracture: a Discrete Modeling Perspective	830 T. Henao The Effect of Saturating Fluids on Tensile and Compressive Strength of Quarzitic Sandstones	1044 S. Serebrinsky Finite Elements Simulation of the Interaction of a Hydraulic Fracture With a Natural Fracture	188 D. Zapf Numerical Investigations of Thermally Induced Fractures in Rock Salt
03:15 pm-03:30 pm	212 X. Shi Pore Structure and Mechanical Property Change of Different Rocks Under Nitrogen Freezing	474 F. Pizzocolo Coupling Flow - Geomechanical Model for Stimulation of Fractured Geothermal Fields	476 J. Zhou Post-Fracturing Experiment Simulation of Hydraulic Fracture Propagation in a Deep Mine Using a Fully Coupled 3D Network-Flow and Quasi-static Discrete Element Model	563 C. Gong Sealant Behavior of EPDM Gaskets in TBM Tunnel Segmental Joints

Wednesday, 28 June 2017				
Time	Track A Technical Session 40 – Elizabethan C&D Coupled Processes (2)	Track B Technical Session 44 – California West Integrated Reservoir Geoemchanics (2)	Track C Technical Session 48 – California East Laboratory and Field Measurements (4)	Track D Technical Session 52 -- Elizabethan A&B Hydraulic Fracturing Case Studies (4)
04:00 pm-04:15 pm	267 S. Prassetyo Efficient Sequential Coupling Technique for the Simulation of Hydro-Mechanical Interaction in Rock Engineering	224 W. Yu Laboratory Geomechanical Characterization of the Arbuckle Group in Oklahoma	181 Y. Xiao Characterization of fracture conductivity of hydraulic fracturing in hot dry rock exploitation	110 Q. Liu Experimental Study of Radial Drilling-fracturing for Coalbed Methane
04:15 pm-04:30 pm	439 A. Obeysekara Modelling the Evolution of a Fracture Network Under Excavation-Induced Unloading and Seepage Effects Based on a Fully Coupled Fluid-Solid Simulation	312 F. Rassouli Viscoplastic Creep Experiments on Wolfcamp Shales, Permian Basin, West Texas, Usa	227 Z. Ye Injection-driven Shear Slip and the Coupled Permeability Evolution of Granite Fractures for EGS Stimulation	702 X. Yang Measurement and Implications of the Dynamic Fracture Width in Hydraulic Fracturing Using FBG Strain Sensors
04:30 pm-04:45 pm	133 H. Xu Modeling of a Clay-Rock Repository for Nuclear Waste With a Coupled Chemo-Mechanical Approach	327 P. Adabnezhad Three-Dimensional Modeling of Geomechanical Units Using Acoustic Impedance in One of the Gas Fields in South of Iran	255 A. Vachaparampil Strength Criteria for Shale under True-Triaxial Stresses	911 S. Kumar Modeling of Fluid-driven Fractures using XFEM
04:45 pm-05:00 pm	290 T. Bjoernaraa Hydromechanical Modelling of Rock Mass Grouting.	491 A. Ashida Coupled Fluid Flow and Geomechanical Modeling for Understanding the Mechanism of Depletion-Induced Reservoir Compaction and Its Impact on Hydrocarbon Production	757 L. Zhuang Laboratory Evaluation of Induced Seismicity Reduction and Permeability Enhancement Effects of Cyclic Hydraulic Fracturing	104 B. Mehrgini Hydraulic Fracture Geometry and Geomechanical Characteristics of Carbonate Reservoir Rock
05:00 pm-05:15 pm	894 A. Rodriguez Upscaling of Hydraulic and Mechanical Parameters in Coupled Flow-Deformation Simulation Problems	602 R. Quevedo 2d and 3d Numerical Modeling of Fault Reactivation	381 S. Govindarajan Evaluation of Fracability for Reservoir Rock - a Laboratory Study	281 Q. Liu Hydraulic Fracture Initiation from Radial Lateral Borehole
05:15 pm-05:30 pm	501 H. Florez Applications of Model-Order Reduction To Thermo-Poroelasticity	447 J. Huang An Integrated Approach to Constrain In-Situ Stress Field: Comprehensive Geomechanical Analysis	760 R. Wang Study of Scale Effects of Rock Quality Designation (RQD) Measurements Using a Discrete Fracture Network Approach	528 L. Yang The Effects of Fracturing Fluid Imbibition on Fracture Conductivity in Tight Reservoirs

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