



Texas 2021 Program at a Glance

The program for this year's symposium will be conducted online due to the unfortunate worldwide pandemic. The symposium will stretch over eight days from Friday, 18 June, until Friday, 25 June 2021. This will allow us to accommodate various worldwide time zones and to avoid "Zoom Fatigue" as much as possible. Four short courses will be presented on Saturday, 19 June, and Sunday, 20 June. These courses are open to any symposium registrant. Monday through Friday will feature concurrent track sessions, poster sessions, keynote addresses, awards ceremonies, sponsors' information, announcements, and social gatherings. Special student and Future Leader events are scheduled the week before or after the Symposium.

The technical program will stretch from Monday through Friday from 13:00 to 17:00 UTC. The following information is provided for convenience to our symposium attendees from around the world. Please double check your local time zone prior to events of interest.

12:00 UTC (Coordinated Universal Time)

08:00 New York (USA, EDT, UTC-4)

07:00 Houston (USA, CDT, UTC-5)

06:00 Denver (USA, MDT, UTC-6)

05:00 Los Angeles (USA, PDT, UTC-7)

13:00 London (Europe, BST, UTC+1)

15:00 Riyadh (Middle East, AST, UTC+3)

20:00 Beijing (China, CST, UTC+8)

22:00 Sydney (Australia, AEST, UTC+10)

Friday, June 18

14:00-21:00 UTC **Special event** Mentor-Student Event

09:00-16:00 Houston | 15:00-22:00 London | 17:00-00:00 Riyadh | 22:00-05:00 Beijing | 00:00-07:00 Sydney

Saturday, June 19

13:00-17:00 UTC **Short course** Numerical Modeling of Fluid Injection

Treatment of Naturally Fractured Rock Masses

08:00-12:00 Houston | 14:00-18:00 London | 16:00-20:00 Riyadh | 21:00-01:00 Beijing | 23:00-03:00 Sydney

Sunday, June 20

13:00-21:00 UTC **Short course** Overview of Unconventional Geomechanics

08:00-16:00 Houston | 14:00-22:00 London | 16:00-00:00 Riyadh | 21:00-05:00 Beijing | 23:00-07:00 Sydney

13:00-17:00 UTC **Short course** Putting DFN into Practice for Energy, Infrastructure, and Mining

08:00-12:00 Houston | 14:00-18:00 London | 16:00-20:00 Riyadh | 21:00-01:00 Beijing | 23:00-03:00 Sydney

Monday, June 21 — *Times in UTC, unless otherwise noted.*

12:00-12:40 **Social hour for Australia, Asia, Europe, Eastern US time zones**

12:40-12:50 **Welcome**

07:40-07:50 Houston | 13:40-13:50 London | 15:40-15:50 Riyadh | 20:40-20:50 Beijing | 22:40-22:50 Sydney

13:00-13:50 **Five concurrent track sessions**

08:00-08:50 Houston | 14:00-14:50 London | 16:00-16:50 Riyadh | 21:00-21:50 Beijing | 23:00-23:50 Sydney

1.1.B Numerical Modeling Developments for Mining Applications

1.1.C Numerical Modeling in Geomechanics: Civil Engineering Applications

1.1.D Drilling — Open Hole Wellbore Mechanics and Stability — 1

1.1.E Unconventional Geomechanics Characterization — 1

1.1.F Data Analysis and Machine Learning Applications in Geomechanics

13:50-14:00 **Break**

14:00-14:50 **Five concurrent track sessions**

09:00-09:50 Houston | 15:00-15:50 London | 17:00-17:50 Riyadh | 22:00-22:50 Beijing | 00:00-00:50 Sydney

1.2.B Numerical Modeling and Rock Mass Characterization for Mining

1.2.C Rock Mass Characterization and Geohazards

1.2.D Drilling — Open Hole Wellbore Mechanics and Stability — 2

1.2.E Unconventional Geomechanics Characterization — 2

1.2.F Stress Field and Beyond: Remembrance of Francois Cornet

14:50-15:50 **Keynote SARAH WILSON**

09:50-10:50 Houston | 15:50-16:50 London | 17:50-18:50 Riyadh | 22:50-23:50 Beijing | 00:50-01:50 Sydney

Session sponsor: **U.S. Department of Energy**

Opening remarks: **ARMA Technical and Distinguished
Service Awards for 2020 and 2021**



15:50-16:00 **Break**

16:00-16:50 **Five concurrent track sessions**

11:00-11:50 Houston | 17:00-17:50 London | 19:00-19:50 Riyadh | 00:00-00:50 Beijing | 02:00-02:50 Sydney

1.4.B Department of Energy GTO Overview by Dr. Sue Hamm & Geothermal Panel Discussion

1.4.C Drilling — Open Hole Wellbore Mechanics and Stability — 3

1.4.D Drilling — Cased Hole Wellbore Integrity — 1

1.4.E Unconventional Geomechanics Characterization — 3

**1.4.F Hydraulic Fracturing Stress Measurements — Interdisciplinary
Aspects of Theory, Performance, and Interpretation**

16:50-18:00 **Social hour for US, Europe, Western Asia**

Tuesday, June 22 — *Times in UTC, unless otherwise noted.*

12:00-13:00 **Social hour for Australia, Asia, Europe, Eastern US time zones**

13:00-13:50 **Five concurrent track sessions**

08:00-08:50 Houston | 14:00-14:50 London | 16:00-16:50 Riyadh | 21:00-21:50 Beijing | 23:00-23:50 Sydney

2.1.B Rock Mechanics and Geohazards in Mining

2.1.C Slope Stability, Dams and Foundations

2.1.D Drilling — Cased Hole Wellbore Integrity — 2

2.1.E Induced Seismicity (Disposal / Stimulation Wells)

2.1.F Coupled THMC Experiments

13:50-14:00 **Break**

14:00-14:50 **Poster sessions**

09:00-09:50 Houston | 15:00-15:50 London | 17:00-17:50 Riyadh | 22:00-22:50 Beijing | 00:00-00:50 Sydney

2.2.B Unconventionals Posters: Geomechanics / Drilling Challenges

2.2.C Civil / Mining Posters

2.2.D Conventionals Posters: Characterization / Reservoirs

2.2.E Unconventionals Posters: Hydraulic Fracture Modeling

2.2.F Interdisciplinary Posters: Shales / Drilling

14:50-15:50 **Keynote AHMAD GHASSEMI**

09:50-10:50 Houston | 15:50-16:50 London | 17:50-18:50 Riyadh | 22:50-23:50 Beijing | 00:50-01:50 Sydney

Session sponsor: **Aramco**

Opening remarks: **Recognition of student chapters and leaders**

**Winners of student research, design,
and photo competitions**



15:50-16:00 **Break**

16:00-16:50 **Five concurrent track sessions**

11:00-11:50 Houston | 17:00-17:50 London | 19:00-19:50 Riyadh | 00:00-00:50 Beijing | 02:00-02:50 Sydney

2.4.B Collab Measurements, Simulations, and Learnings

2.4.C Coupled THMC Modeling

2.4.D Drilling — Cased Hole Wellbore Integrity — 3

2.4.E Hydraulic Fracture Modeling — Theoretical, Experimental, and Numerical — 1

2.4.F Drilling — Mechanics, Process, and Automation

16:50-18:00 **Social hour for US, Europe, Western Asia**

Wednesday, June 23 — *Times in UTC, unless otherwise noted.*

12:00-13:00 **Social hour for Australia, Asia, Europe, Eastern US time zones**

13:00-13:50 **Five concurrent track sessions**

08:00-08:50 Houston | 14:00-14:50 London | 16:00-16:50 Riyadh | 21:00-21:50 Beijing | 23:00-23:50 Sydney

3.1.B Slope and Underground Mine Development

3.1.C Tunneling and Underground Construction

3.1.D Drilling — Depleted Reservoirs

3.1.E Hydraulic Fracture Modeling — Theoretical, Experimental, and Numerical — 2

3.1.F Subsurface Storage and Sequestration

13:50-14:00 **Break**

14:00-14:50 **Five concurrent track sessions**

09:00-09:50 Houston | 15:00-15:50 London | 17:00-17:50 Riyadh | 22:00-22:50 Beijing | 00:00-00:50 Sydney

3.2.B Characterization — Pore Pressure and Fracture Gradient

3.2.C Experimental Rock Mechanics / Advances in Rock Testing — 1

3.2.D Characterization — Novel Techniques for Geomechanics — 1

3.2.E Hydraulic Fracture Modeling- Theoretical, Experimental, and Numerical — 3

3.2.F Mechanics and Physics of Shale

14:50-15:50 **Panel WOMEN IN ROCK MECHANICS**

09:50-10:50 Houston | 15:50-16:50 London | 17:50-18:50 Riyadh | 22:50-23:50 Beijing | 00:50-01:50 Sydney

Session sponsor: **Shell**

Opening remarks: **Induction of new class of ARMA Fellows and Future Leaders**

Moderator: **Kathy S. Kalenchuk**

Panelists: **Kate Baker, Véronique Falmagne, Ghazal Izadi,**

Priscilla Nelson, Courtney Palleske, Marlene Villeneuve



15:50-16:00 **Break**

16:00-16:50 **Five concurrent track sessions**

11:00-11:50 Houston | 17:00-17:50 London | 19:00-19:50 Riyadh | 00:00-00:50 Beijing | 02:00-02:50 Sydney

3.4.B Geothermal Simulations and General Geothermal Considerations — 1

3.4.C Drilling Challenges in Unconventionals

3.4.D Characterization — Novel Techniques for Geomechanics — 2

3.4.E Hydraulic Fracture Modeling — Theoretical, Experimental, and Numerical — 4

3.4.F Constitutive Behavior in Geomechanics: Experiments, Simulations, and Applications

16:50-18:00 **Social hour for US, Europe, Western Asia**

Thursday, June 24 — *Times in UTC, unless otherwise noted.*

12:00-13:00 **Social hour for Australia, Asia, Europe, Eastern US time zones**

13:00-13:50 **Five concurrent track sessions**

08:00-08:50 Houston | 14:00-14:50 London | 16:00-16:50 Riyadh | 21:00-21:50 Beijing | 23:00-23:50 Sydney

4.1.B Mining Innovations and Ground Control

4.1.C Experimental Rock Mechanics / Advances in Rock Testing — 2

4.1.D Characterization - Novel Techniques for Geomechanics — 3

4.1.E Hydraulic Fracture Modeling — Applications and Case Studies

4.1.F Salt Systems / Underground Storage in Salt

13:50-14:00 **Break**

14:00-14:50 **Poster sessions**

09:00-09:50 Houston | 15:00-15:50 London | 17:00-17:50 Riyadh | 22:00-22:50 Beijing | 00:00-00:50 Sydney

4.2.B Unconventionals Posters: Hydraulic Fracture Modeling / New Techniques in HF

4.2.C Interdisciplinary Posters: Constitutive Modeling / Multi-scale Characterization

4.2.D Conventionals Posters: Production / Drilling

4.2.E Unconventionals Posters: General Considerations

4.2.F Interdisciplinary Posters: General considerations

14:50-15:50 **Keynote MATT PIERCE**

09:50-10:50 Houston | 15:50-16:50 London | 17:50-18:50 Riyadh | 22:50-23:50 Beijing | 00:50-01:50 Sydney

Session sponsor: **Rocscience**

Opening remarks: **Recognition of rotating and introduction
of new Board members and officers**



15:50-16:00 **Break**

16:00-16:50 **Five concurrent track sessions**

11:00-11:50 Houston | 17:00-17:50 London | 19:00-19:50 Riyadh | 00:00-00:50 Beijing | 02:00-02:50 Sydney

4.4.B Geothermal Simulations and General Geothermal Considerations — 2

4.4.C Production Decline and Rock Mechanics: Mechanisms and Mitigation

4.4.D Reservoir — Field Scale Compaction, Subsidence, Casing Deformation

4.4.E Geomechanics of Hydraulic Fracture Interference: Intra-Stage, Intra-Well & Inter-Well

4.4.F Multi-scale Characterization and Modeling of Rock Heterogeneities

16:50-18:00 **Social hour for US, Europe, Western Asia**

Friday, June 25 — Times in UTC, unless otherwise noted.

12:00-13:00 Social hour for Australia, Asia, Europe, Eastern US time zones

13:00-13:50 Five concurrent track sessions

08:00-08:50 Houston | 14:00-14:50 London | 16:00-16:50 Riyadh | 21:00-21:50 Beijing | 23:00-23:50 Sydney

5.1.B DFN and Longwall Geomechanics

5.1.C Experimental Rock Mechanics / Advances in Rock Testing — 3

5.1.D Reservoir — Complex Settings: Structural, Heterogeneous, Deepwater & Salt Systems

5.1.E Unconventional Hydraulic Fracturing, New Techniques, and Applications — 1

5.1.F Induced Seismicity

13:50-14:00 Break

14:00-14:50 Five concurrent track sessions

09:00-09:50 Houston | 15:00-15:50 London | 17:00-17:50 Riyadh | 22:00-22:50 Beijing | 00:00-00:50 Sydney

5.2.B DFNE

5.2.C Nondestructive Evaluation in Rock Mechanics

5.2.D Production — Geomechanics Driven Production Decline

5.2.E Unconventional Hydraulic Fracturing, New Techniques, and Applications — 2

5.2.F Machine Learning and Artificial Intelligence Applications for Petroleum Reservoirs

14:50-15:50 Early Career Keynote HIROKI SONE

09:50-10:50 Houston | 15:50-16:50 London | 17:50-18:50 Riyadh | 22:50-23:50 Beijing | 00:50-01:50 Sydney

Session sponsor: **Itasca**

Opening remarks: **Recognition of the 2021 organizing committee**

Announcement of Best Paper Awards

Invitation to the Santa Fe 2022 symposium

ISRM Initiative on Planetary Rock Mechanics



15:50-16:00 Break

16:00-16:50 Five concurrent track sessions

11:00-11:50 Houston | 17:00-17:50 London | 19:00-19:50 Riyadh | 00:00-00:50 Beijing | 02:00-02:50 Sydney

5.4.B Nonconventional Geothermal Applications

5.4.C Petroleum in Latin America: Conventional and Unconventional

5.4.D Production — Injection Hazards, Faults and Fractures Stability and Reactivation

5.4.E Fracture Diagnostics and Surveillance: New Technologies and Methods

5.4.F Experiment, Modeling, and Machine Learning Applications in Geomechanics

16:50-18:00 Closing session and social hour for US, Europe, Western Asia