95th Annual Meeting of the Eastern Society of the Seismological Society of America

October 22-24, 2023
Southern Methodist University
Dallas, Texas

Acknowledgements

Many people contributed to the success of the ES-SSA 2023 meeting, and we would like to thank them:

Jesuit Seismological Association Awardee: Dr. Christine Goulet, Director of the U.S. Geological Survey Earthquake Science Center

Banquet Guest Speaker: Dr. Mark Petersen, Chief of the National Seismic Hazard Mapping Program, U.S. Geological Survey

Web Logistics: Monica Lu and Kevin Cristiano, Seismological Society of America

Student Travel Grant and Best Student Presentation Coordination: Zhigang Peng, Georgia Institute of Technology and John Ebel, Boston College. Best Student Presentation Awards are supported by Nanometrics.

Field Trip Leaders: Rita Economos and Ben Bradley, Southern Methodist University

Jesuit Seismological Society Award Committee: Maurice Lamontagne, Natural Resources Canada and Chris Powell, University of Memphis

Meeting Preparation Support: Tina Ivey, Stephanie Schwob, Abigail Smith and Cathy Chickering, Southern Methodist University

Many thanks to the session chairs and the SMU student volunteers!

Stephen Arrowsmith, **Heather DeShon** and **Nicos Makris**
Meeting Co-Chairs

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General Information

Welcome to Southern Methodist University!

The 95th Annual Meeting of the Eastern Section of the Seismological Society of America is hosted by Southern Methodist University in Dallas, Texas. The meeting will take place on 22-24 October 2023.

A **field trip** to the **Meers Fault in Oklahoma** will take place on **Sunday 22 October**. Registered participants will meet at 6:45 AM the **Lumen Hotel**. The field trip leaves at 7:00 AM. Donuts and kolaches and lunch are provided. We will return to the Lumen Hotel around 4:30-5:00 PM.

An **icebreaker reception** will start off the meeting on the evening of **Sunday 22 October**. The reception is on the **rooftop terrace** of the **Lumen Hotel** from **6-8 PM**. Appetizers and drinks provided. The event is sponsored by **Kinemetrics**.

The **Executive Committee of the ES-SSA** will meet on Sunday 22 October at 8:00 PM in the **Solar Boardroom** at the **Lumen Hotel**. The Solar Boardroom is located on the second floor in the south block of the hotel.

The **venue for the formal presentations is the Auditorium of Francis Moody Hall** located on the Southern Methodist University campus (see map). Presentations will be on **Monday 23 October and Tuesday 24 October,** and sessions will run from **8:30 AM to about 5:00 PM** (see meeting schedule below for details). Registration will open at 7:30 AM on each day; coffee is provided.

The **Annual Banquet and Jesuit Seismological Association Award Dinner** will be on Monday evening at **7-9 PM** on the **Pool Deck** of the **Lumen Hotel.** The event will be preceded by a **reception from 6-7 PM**. The Banquet Presentation will be given by Dr. Mark Petersen, Chief of the National Seismic Hazard Mapping Program, USGS.

The **Nanometrics Best Student Presentation Awards** will be announced following the meeting. Judges will be assessing student work through our last afternoon session.

Presentation Information:

Speakers: Oral presentations will be 15 minutes long including questions. Equipment for PowerPoint presentations will be available. Please find out from the program when your presentation is, and make sure to load your presentation on the meeting computer (a PC) well in advance of your presentation. Please bring a USB stick with your PowerPoint presentation and **upload BEFORE your session**. We are not recording the presentations.

Posters: Poster presentations will be up during the entire meeting, and we have dedicated time slots for the posters. Poster boards are approximately **6 ft wide and 4 ft high,** and thumb tacks

will be available. Please be near your poster during the Monday and Tuesday poster sessions. **Latest poster takedown: 5:00 PM Tuesday**.

Information for Session Chairs: A microphone will be at the lectern. Each oral presentation, including questions and change-over time, is 15 minutes long.

Meeting Website:

https://www.seismosoc.org/inside-eastern-section/annual-meeting/

SRL Abstracts:

Abstracts for meetings of the Eastern Section of the SSA will be published electronically.

Travel information:

Dallas Love Field Airport
8008 Herb Kelleher Way, Dallas TX 75235
4.6 Miles to SMU
Uber/Lyft: $11 - one way
Dallas Yellow Cab: $21 flat rate - one way

DFW International Airport
2400 Aviation Drive, DFW Airport TX 75261
22.7 Miles to SMU
Uber/Lyft: $32 - one way
Dallas Yellow Cab: $21 flat rate - one way

The Lumen: A Dallas Boutique Hotel
6101 Hillcrest Avenue, Dallas 75205
Phone: (214)219-2400
Fax: (214)219-2402
Email: infor@thelumendallas.com

The Beeman Hotel
6070 N Central Expy, Dallas 75206
Phone: (214)750-6060

DART Light Rail
Located on Mockingbird Lane and North Central Expressway, SMU/Mockingbird Station is served by the DART Rail Red, Orange and Blue lines.

Campus Maps, Driving Directions and Parking Information:

https://www.smu.edu/BusinessFinance/CampusServices/ConferenceServices/campus-info/Maps-and-Parking

Visitor parking passes for the Binkley Parking Center should be pre-arranged by contacting the registration staff [Tina Ivey, tivey@smu.edu; with cc to Heather DeShon, hdeshon@smu.edu].

Contacts:

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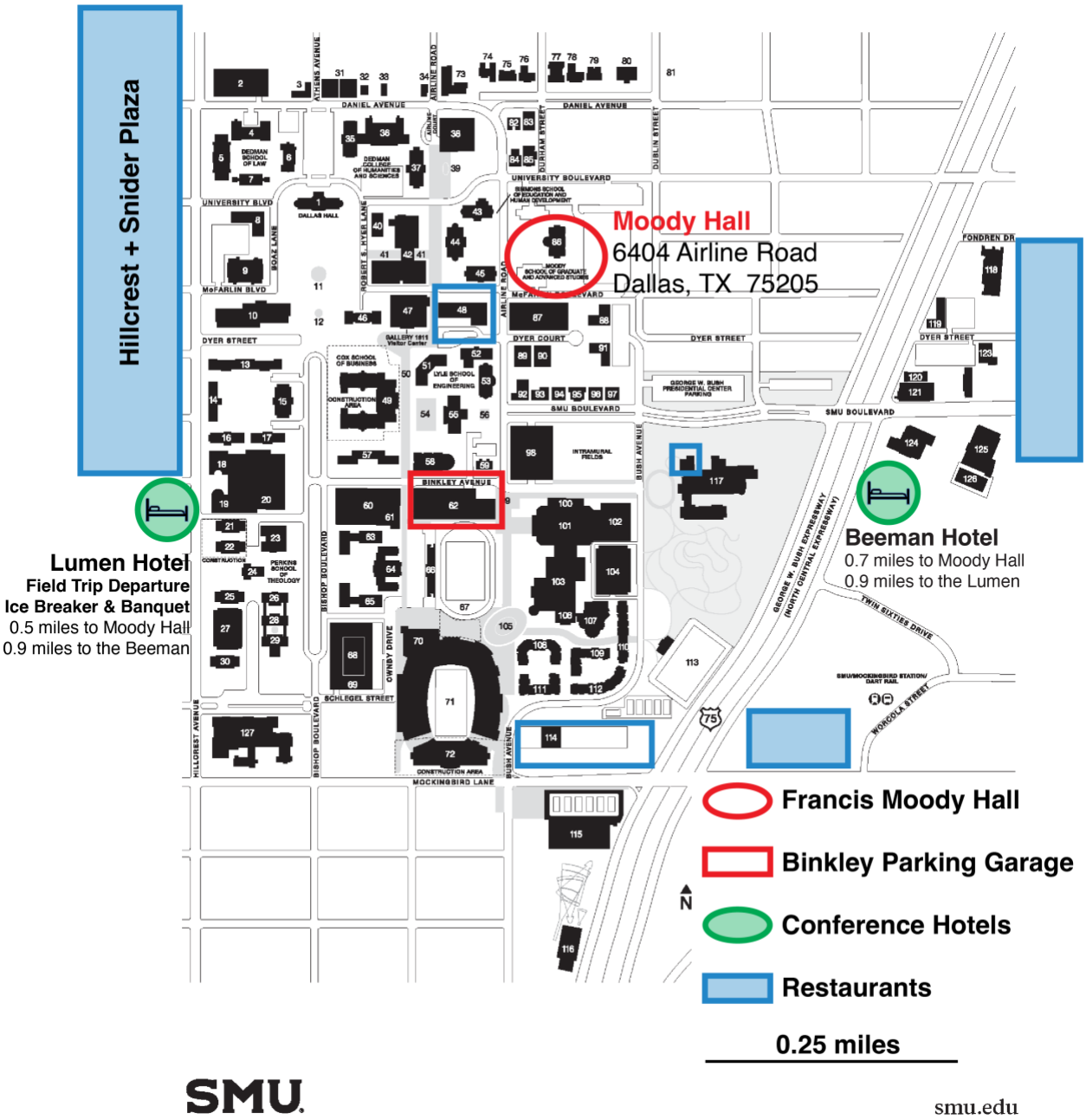

Prearranged E-Permits are valid at Binkley Parking Garage, 3105 Binkley Avenue. Level 2 and above. Use code located on the provided pdf permit to exit.

The Hillcrest and Snider Plaza area offers over 30 restaurant choices. The student center (48) and bookstore area (114) also have dining options. Mockingbird Station (DART rail) and the area just northeast of the Beeman Hotel provide dining and bars. Cafe 43, at the Bush Presidential Library (117), offers seated meals.

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Meeting at a Glance

Sunday, October 22	Monday, October 23	Tuesday, October 24
Field Trip 7:00am – 5:00pm Light Breakfast and Lunch provided	Registration & Coffee (7:30-8:30)	Registration & Coffee (7:30-8:30)
	Opening Remarks (8:30-8:40) Oral Session (8:40-10:10)	Business Meeting (8:30-9:00) Oral Session (9:00-10:00)
	Break & Coffee	Break & Coffee
	Oral Session (10:30-12:05)	Oral Session (10:15-12:15)
	Lunch (12:05-13:30)	Lunch (12:30-13:45)
	Oral Session (13:30-15:15)	Poster Session (13:45-15:15)
	Break & Coffee	Break & Coffee
	Poster Session (15:30-17:00)	Oral Session (15:30-16:45)
		Closing Remarks & Raffle (16:30-16:45)

Location: Rooftop Terrace, Lumen	Location: Pool Deck, Lumen
Icebreaker Reception (18:00-20:00) Board Meeting (closed, 20:00-21:00)	Reception (18:00-19:00) Banquet & Award Dinner (19:00-21:00)

Program

Monday October 23

CEUS Seismicity

8:40 – 8:55	**Recent Seismicity Around Littleton, MA** J.E. Ebel (Boston College) and J.C. Cipar (Boston College)
8:55 – 9:10	**Using Waveform Template Matching to Document the Temporal Evolution of the 2021-2023 Elgin, South Carolina Earthquake Swarm** S. Jaume (College of Charleston), O. Adeboboye (Georgia Tech) and Z. Peng (Georgia Tech)
9:10 – 9:25	**Revisiting Seismicity and Seismic Monitoring in the Northeastern United States** F. Waldhauser (Columbia University), E. Beauce (Columbia University), K. Wang (Columbia University), D. Schaff (Columbia University), M. Gold (Instrumental Software Technologies, Inc.), and W-Y Kim (Columbia University)
9:25 – 9:40	*Cancelled*
9:40 – 9:55	**Deep-learning versus seismic network earthquake catalogs: accuracy and other considerations for seismic networks and researchers** J. I. Walter (Oklahoma Geological Survey), P. Neupane (Southern Methodist University), H. DeShon (Southern Methodist University)
9:55 – 10:10	**Fault slip potential models for known and suspected Quaternary tectonic features in the Central and Eastern United States** W. Levandowski (Tetra Tech)

Seismoacoustics

10:30 – 10:45	**Advances in Seismoacoustic Science and Technology Based on 25 Years of Network Operations,** J. Park (Southern Methodist University), B. Stump (Southern Methodist University), I.-Y. Che (Korea Institute of Geoscience and Mineral Resources), C. Hayward (Southern Methodist University), and S. Arrowsmith (Southern Methodist University)
10:45 – 11:00	**Advantages of Building and Interpreting Long-Term Seismoacoustic Catalogs** B. Stump (Southern Methodist University), J. Park (Southern Methodist University), S. Arrowsmith (Southern Methodist University), I.-Y. Che (Korea Institute of Geoscience and Mineral Resources), and C. Hayward (Southern Methodist University)
11:00 – 11:15	**Infrasound Monitoring in Utah, U.S.A.,** K. Pankow (University of Utah), S. Albert (Sandia National Laboratories), N. Forbes (University of Utah), J. M. Hale (University of Utah), and R. Burlacu (University of Utah)
11:15 – 11:30	**Building A Comprehensive Infrasound Catalog for the Utah Region** M. Patrick (University of Utah), J.M. Hale (University of Utah), K.L. Pankow (University of Utah), S.A. Albert (Sandia National Laboratories)
11:30 – 11:45	**Advances in Seismo-Acoustic Monitoring at the Nevada National Security Sites,** Cleat Zeiler1, Melissa Wright1, Michelle Scalise1, Reagan Turley1, Eric Eckert1, Robert White1, Doug Seastrand1, Gene Ichinose2, Jeremy Webster3, Philip Blom3, Ting Chen3, Carene Larmat3, Elizabeth Silber4, Danny Bowman4, Milton Garces5, Samuel Takazawa5, Shirin Wyckoff5, Nevada National Security Sites1, Lawerence Livermore National Laboratory 2, Los Alamos National Laboratory 3, Sandia National Laboratory 4, University of Hawaii 5
11:45 – 12:05	**Reflecting on Brian Stump's contributions to the field of seismoacoustics** F. Dannemann Dugick (Sandia National Laboratories), J. Park (Southern Methodist University), R. Reinke (formally at Defense Threat Reduction Agency), K. McLaughlin (Leidos), S. McComas (U.S. Army Engineer Research and Development Center), R.Zhou (Air Force Technical Applications Center), C. Zeiler (Nevada National Security Site)

Lunch

Seismoacoustics

1:30 – 1:45	**Acoustic Signatures from Low-Magnitude Earthquakes in the West TX Region** F. Dannemann Dugick (Sandia National Laboratories), L. Schaible (Sandia National Laboratories), D.C. Bowman (Sandia National Laboratories), A. Savvaidis (UT Austin), C. McCabe (UT Austin), M. Fleigle (Sandia National Laboratories)
1:45 – 2:00	**Seismo-Acoustic observations of a prescribed burn** Marcillo O. (Oak Ridge National Laboratory), Yedinak K. (U.S. Forest Service), Lees J. M. (UNC Chapel Hill), Keith Bourne (U.S. Forest Service), and Brian Potter (U.S. Forest Service)
2:00 – 2:15	**Seismic Modeling of Blast Data using Finite-Discrete Element and Finite Element Methodologies** A. Padilla (Los Alamos National Laboratory), C. Larmat (Los Alamos National Laboratory), B. Euser (Los Alamos National Laboratory), E. E. Knight (Los Alamos National Laboratory), and E. Rougier (Los Alamos National Laboratory)
2:15 – 2:30	**High-Order Finite-Difference Simulations for Long-Range Infrasound Propagation,** K. Kim (Lawrence Livermore National Lab)
2:30 – 2:45	**Finite-difference time-domain modeling study of infrasound arrivals from the September 2017 North Korean underground nuclear test**, J. Howard (SMU), J. Park (SMU), B. W. Stump (SMU)
2:45 – 3:00	**Pre-field testing of infrasonic instruments before NASA's OSIRIS-REx re-entry experiment**, S. Bazargan, S. Horton, I. Mitra, S. Islam, and C. A. Langston (University of Memphis)
3:00 – 3:15	**A Seismo-Acoustic Array Experiment at Eureka, NV, to Record the Sonic Boom from the OSIRIS-REx Capsule Return**, 24 September 2023, C. A. Langston, S. Bazargan, S. Horton, I. Mitra, and S. Islam (University of Memphis)

Posters 3:30 - 5pm

1. **Focal Mechanisms of earthquakes from 2012 to 2021 in New Madrid Seismic Zone** Neupane, P. (SMU) DeShon H. (Southern Methodist University), Walter J. (Oklahoma University), and Ng R (Oklahoma University)

2. **Upgrading the NVIAR Array: Installation of a 70-m-Aperture Infrasound Array for Enhanced Local Explosion Monitoring** J. Clarke (Southern Methodist University), S. Arrowsmith (Southern Methodist University), A. Endress (Southern Methodist University), D. Anderson (Southern Methodist University), C. Hayward (Southern Methodist University), C. Simpson (Southern Methodist University), T. Neely (Southern Methodist University), J. Silver (Southern Methodist University), and J. Park (Southern Methodist University)

3. **High-Precision Analysis of the Seismicity in the Vicinity of Elgin Swarm Sequence: Phase Detection, Event Relocation and Focal Mechanisms** O. E. Adeboboye (Georgia Tech), L. Y. Chuang (Georgia Tech), M. Neves (Université Côte d'Azur), D. A. Frost (Uni. South Carolina), Z. Peng (Georgia Tech), S. C. Jaume' (College of Charleston)

4. **Improved Gutenberg-Richter distribution captures the observed occurrence rates of small magnitude (M_w < 1.5) shocks** E. R. Petschek (Boston College), J. E. Ebel (Boston College)

5. **SH-wave seismic-reflection imaging of a Quaternary-active shear zone at Wolf Island, Missouri, northern New Madrid seismic zone, USA** S. R. Vicroy (University of Kentucky), E. W. Woolery (University of Kentucky), and K. Woller (University of Kentucky)

6. **Moment Magnitude Estimation Using Machine Learning Algorithms for Central and Eastern United States** N. Alidadi and S. Pezeshk (University of Memphis)

7. **Signal detection on the LVIA: identifying events of interest through urban infrasonic noise** N. R. Wynn (Sandia National Laboratories), F. Dannemann Dugick (Sandia National Laboratories), S. R. Santellanes (Sandia National Laboratories, University of Oregon), S. Albert (Sandia National Laboratories)

8. **HOLISTIC EXAMINATION OF WESTERN CANADA USING SHEAR WAVE SPLITTING** K. Sabunis (Colorado State University), D. Schutt (Colorado State University), A.J. Schaefer (Rice University)

9. **Deciphering Time- Dependent Deformation and Stress Fields of Intraplate Seismicity: Effects of Poroelasticity, Viscoelasticity, Fault Slip and Fault Orientation** S.S. Bodunde and J. Jiang, School of Geosciences, University of Oklahoma

10. **Seismo-Acoustic Studies Along the US "Northeast Corridor" with Raspberry Shakes and Booms: Using Low Cost Sensors for zCitizen Science and Basic Research** Jay J. Pulli and Alan L. Kafka (Boston College)

11. **Coda Envelope Moment Magnitudes in the Mississippi Embayment Region** G. Johnson

12. **Gravity imaging in the epicentral zone of the 2020 M5.1 Sparta, NC intraplate earthquake** W. Levandowski,

13. **Transforming Earthquake Science and Engineering** A. Velasco (Univ. of Texas at El Paso), M. Karplus (Univ. of Texas at El Paso), J. Weidner (Univ. of Texas at El Paso), M. Alvillar (Univ. of Texas at El Paso), S. Bilek (New Mexico Tech), M. Brudzinski (Miami University), D. Chandrsekhar (Univ. of Utah), J. Ebel (Boston College), T. Hobbs (Natural Resources Canada, J. Hurtado (Univ. of Texas at El Paso, S. Jaume (College of Charleston), E. Jones (UT Health Science Center at Houston School of Public Health, El Paso campus), A. Kafka (Boston College),

Y. Lin (Univ. of New Mexico), A. Nunez (Univ. of Texas at El Paso), K. Pankow (Univ. of Utah), Z. Peng (Georgia Tech), A. Savvaidis (Univ. of Texas at Austin), E. Vanacore (University of Puerto Rico, Mayaguez), C. Bolton Valencius (Boston College) The Center for Collective Impact in Earthquake Science (C-CIES)

14. **Possible Seismic/Infrasonic Evidence for the F35 Fighter Jet Incident on 09/17/2023?** Z. Peng (Georgia Tech), R. Abercrombie (Boston University), and Steve Jaume (College of Charleston)

15. **A numerical investigation of the stress drop variations observed in the induced earthquake sequence near the Dallas-Fort Worth Airport, Texas** S. Jeong (University of Toronto), X. Tan (University of Toronto), and S. K. Y. Lui (University of Toronto)

Tuesday October 24

***Eastern Section SSA Business Meeting*, for all ES-SSA members, 8:30 – 9:00 AM**

Geothermal / Induced Earthquakes

9:00 – 9:15	**Determining the tectonic framework at the Soda Lake geothermal field using multi-type data** Muhammad Nawaz Bugti (University of Houston), Yingcai Zheng (University of Houston), Lianjie Huang (Los Alamos National Laboratory), Luis Navarro (Cyrq Energy)
9:15– 9:30	**Steady and Transient Crustal Signals From Joint GNSS-Seismicity Analysis in Oklahoma** J. Jiang (University of Oklahoma), S. Bodunde (University of Oklahoma), M. Oyugi (Jomo Kenyatta University of Agriculture and Technology), J. Walter (University of Oklahoma), and B. M. Carpenter (University of Oklahoma)
9:30 – 9:45	**Permian Basin seismicity and insights gained from studies of the Fort Worth Basin, Texas** H.R. DeShon (SMU), Asiye Aziz Zanjani (SMU), Julia Rosenblit (SMU) and North Texas Earthquake Study Team (SMU)
9:45 – 10:00	**Cross-examining methods for moment tensor inversion of induced earthquakes in the Permian Basin** F. Aziz Zanjani (University of Miami), G.D. Huang (University of Texas at Austin), A. Savvaidis ((University of Texas at Austin), Y. Chen ((University of Texas at Austin), D. Siervo,(University of Texas at Austin), C. Munoz

Induced Earthquakes / Engineering & Site effects / Instrumentation

10:15 – 10:30	**Coupled analysis of seismicity and InSAR in west Texas** N. Igonin (University of Texas at Dallas), A. Savvaidis (University of Texas at Austin), J. Chen (University of Texas at Austin), P. Hennings (University of Texas at Austin), and K. Smye (University of Texas at Austin)
10:30 – 10:45	**Pressure surge mechanism for earthquake dynamic triggering** Zheng, Y. (University of Houston)
10:45 – 11:00	**Spatial and temporal characteristics of induced earthquakes in the Delaware Basin near Pecos, Texas** A. Aziz Zanjani and H. R. DeShon (SMU)
11:00 – 11:15	**Developing and evaluating a machine learning model for picking phase arrivals on DAS and geophone data at the FORGE site** R. Asirifi (Texas A&M University), X. Chen (Texas A&M University), P. Ratre (Google X), A. Mohammadi (Texas A&M University), W. Zhu (University of California, Berkeley)
11:15 – 11:30	**Measuring Earthquakes with Distributed Acoustic Sensing using Dark Fiber in Urban Environments: Application to the Dallas Fort-Worth Area** J. Sharma (Southern Methodist University), S. Arrowsmith (Southern Methodist University), C. Hayward (Southern Methodist University), H. DeShon (Southern Methodist University), and A. Chavarria (LUNA OptaSense)
11:30 – 11:45	**Earthquake Ground Motion Selection for Time History Analysis of Structures Using Metaheuristic Algorithms** Akhani, M (The University of Memphis), Alidadi, N (The University of Memphis), Pezeshk, S (The University of Memphis)

11:45 – 12:00	**Sediment Thickness Map of United States Atlantic and Gulf Coastal Plain Strata, and Their Influence on Earthquake Ground Motions** O. S. Boyd (USGS), D. Churchwell (formerly at USGS), M. P. Moschetti (USGS), E. M. Thompson (USGS), M. C. Chapman (Virginia Tech), O. Ilhan (Ankara Yildirim Beyazit University), T. L. Pratt (USGS), S. K. Ahdi (USGS), S. Rezaeian (USGS)
12:00 – 12:15	**Activation of complex fault mesh network during wastewater injection** Chen Xiaowei (Texas A&M)

Lunch

Posters 1:45 – 3:15

16. *Cancelled* **Bedrock Vs Estimates Derived From Nodal Array Recordings of Ambient Noise** Rogers R. (University of Kentucky), Carpenter, S. (Kentucky Geological Survey), Woolery E. (University of Kentucky), Zhenming W. (Kentucky Geological Survey)

17. **Güralp Smart Sensors - a Comparison of Next Generation Mid-Band Seismometers and Traditional Sensor Technologies** J. C. Lindsey (Guralp Systems Ltd.)

18. **Adjusting Central and Eastern United States Ground Motion Models for Use in the Coastal Plain Considering the Sediment Thickness** Akhani, M (The University of Memphis), Davatgari-Tafreshi, M (The University of Memphis), Pezeshk, S (The University of Memphis)

19. **Ground Motion Model for Small-to-Moderate Potentially Induced Earthquakes Using Machine Learning Algorithms** N. Alidadi and S. Pezeshk

20. **Empirical Fourier Amplitude Spectra Ground-Motion Model using Data from the Iranian Plateau** M. Davatgari-Tafreshi (The University of Memphis), S. Pezeshk (The University of Memphis), and S. S. Bora (Institute of Geological and Nuclear Science (GNS), Lower Hutt, New Zealand)

21. **Investigating Induced Seismicity in the Midland Basin, Texas, Using Converted Phases** Rosenblit, J. (SMU), H. DeShon (Southern Methodist University), A. Savvaidis (Texas Seismological Network and Seismology Research), GD. Huang (Texas Seismological Network and Seismology Research)

22. **Rapid Estimation of the Aftershock Decay Parameters Following the 2023 Magnitude 6.8 Morocco Earthquake** Z. Peng (Georgia Tech), O. Adeboboye (Georgia Tech), J. Zhuang (Institute of Statistical Mathematics)

23. **Characterizing Operational Events of an Underground Mine in Pennsylvania with a Local Seismic Network** C. Chai (Oak Ridge National Laboratory), O. Marcillo (Oak Ridge National Laboratory), M. Maceira (Oak Ridge National Laboratory), E. Cunningham (Oak Ridge National Laboratory), D. J. Miller (Sandia National Laboratories), E. M. Berg (Sandia National Laboratories), C. J. Ammon (Pennsylvania State University), K. Boie (Graymont Inc), J. A. Miller (Graymont Inc), and S. Quick (Graymont Inc**)**

24. **Moment Tensor Inversion for Seismogenic Fault Analysis and Stress Characterization at the FORGE Site, Utah** A. Mohammadi-Ghanatghestani (Texas A&M University), C. Xiaowei (Texas A&M University), R. Asirifi (Texas A&M University)

25. **Producing a Comprehensive Earthquake Catalog for the Island of Hispaniola with Machine Learning** L. F. Muñoz Santos (Baylor University), J. I. Walter (Oklahoma Geological Survey), J. Pulliam (Baylor University), J. Leonel (Universidad Autónoma de Santo Domingo), and E. Polanco (Universidad Autónoma de Santo Domingo)

26. **Numerical Modeling of Pore Fluid Pressure Amplification in Heterogeneous Poroelastic Media Using Biot Theory** J. D. McNease and Y. Zheng (University of Houston)

27. **Measuring Seismic Anisotropy in Granite for Enhanced Geothermal Systems** M.D.Lopez Carrasquilla, M. Sun, Y. Zheng, D. Han

28. **Using Earthquake Catalogs and Geologic Data to Assist with Characterizing Induced Seismicity Potential from CCUS** Carpenter, N.S. (Kentucky Geological Survey), Hickman, J.B. (Kentucky Geological Survey), Greb, S. (Kentucky Geological Survey), Sparks, T.N. (Kentucky Geological Survey), Schmidt, J.P. (Kentucky Geological Survey), Wang, Z. (Kentucky Geological Survey), Kelley, M. (Battelle)

General Seismology

3:30 – 3:45	**Seismic Scattering Anomalies at MLAC: Unraveling Geological Complexity in Long Valley Caldera** Mitra Ipsita (CERI-University of Memphis), and C.A.Langston (CERI-University of Memphis)
3:45 – 4:00	**Waveform Correlation Techniques Applied To A Micro-Seismic Sequence** McLaughlin, K. L.
4:00 – 4:15	**Searching for partial ruptures in Parkfield** A. Turner (University of Texas Institute for Geophysics), J. Hawthorne (University of Oxford) and C. Cattania (MIT)
4:15 – 4:30	**Improving the Detection of Microearthquakes Using the LS-BP Technique: Application to Large-N Arrays** K. S. Roy (Southern Methodist University), S. Arrowsmith (Southern Methodist University), B. Stump (Southern Methodist University), C. Hayward (Southern Methodist University), and J. Park (Southern Methodist University)
4:30 – 4:45	**Crustal Imaging with Noisy Teleseismic P-to-S Receiver Functions** Z. Zhang (University of Rochester), T. Olugboji (University of Rochester)

Closing Remarks and Raffle sponsored by Raspberry Shake

We hope you enjoyed your time at SMU and Dallas.

Please be sure to pick up a token of our appreciation at the Tuesday afternoon break.

The ES-SSA meeting was generously co-sponsored by the following units of SMU:

SMU Office of Research and Innovation

SMU Dedman College of Humanities & Sciences

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SMU Civil and Environmental Engineering

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