



# CONFERENCE PROGRAM



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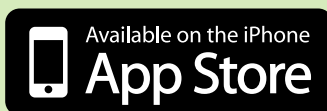


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## Mobile App

Download the IFCEE 2018 Mobile App from the iTunes or Google Play store for up to date information about IFCEE. The app contains an agenda for all technical sessions, short courses, networking lunches and breaks, and evening social events, in addition to exhibitor and sponsor listings, exhibit hall floor plans, attendees, and more! The IFCEE app is free for all users.



# COOPERATING ORGANIZATIONS



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**FDOT**  
Florida Department  
of Transportation



GEO-  
INSTITUTE  
East Central Florida  
Chapter



## Registration Information

**Full Registration:** Entrance to exhibit areas, Wednesday - Friday lunches in exhibit areas, Tuesday & Friday evening receptions, technical sessions, coffee breaks, and conference proceedings. *(Short Courses not included)*

**Technical Session Only:** Includes for selected day: Entrance to technical sessions and exhibit areas, lunch, coffee breaks, Friday Reception (for Friday Tech Session Passes only) and conference proceedings. *(Short Courses and Tuesday reception not included)*

**Exhibits Only Pass:** Entrance to exhibit areas Tuesday - Friday, coffee breaks, and Friday evening reception. NOTE: Short Courses, conference proceedings, technical sessions, Tuesday reception, and daily lunch are not included. *(Lunch may be purchased individually at the Cafe's in the outdoor exhibit areas)*

### Exhibit Hours

Tuesday, March 6	1:00pm-5:00pm
Wednesday, March 7	9:00am-6:00pm
Thursday, March 8	10:00am-6:00pm
Friday, March 9	9:30am-8:00pm

### PROCEEDINGS

Proceedings will be available two weeks post-show. All qualified attendees will be emailed a link via ASCE Publications to login and download the completed proceedings. IFCEE 2018 Proceedings are available in electronic format only.

Conference Center Wifi Passcode: IFCEE2018



## WELCOME

### Dear IFCEE 2018 Colleagues,

We wish to welcome you to this epic geo-industry event, a collaboration between ADSC: The International Association of Foundation Drilling, Deep Foundations Institute (DFI), Geo-Institute of ASCE (G-I) and the Pile Driving Contractors Association (PDCA). Over the next several days, project owners, contractors, consulting engineers, academicians, researchers, and students will gather together with the common goal of addressing the most challenging issues in underground construction. IFCEE 2018 is the premier venue for exploration of innovations in technology and advancement in implementation practices throughout the deep foundations industry. This event holds so much opportunity. We hope each of you will make time during your week to explore everything IFCEE has to offer.

Enjoy your time in Orlando, and thank you so much for joining us. It will be a busy and productive time for all!



Lance Kitchens

**ADSC**  
President



Dan Brown

**DFI**  
President



Youssef Hashash

**G-I**  
President



David R. Chapman

**PDCA**  
President

---

### Conference Chairman

Robert Thompson, P.E., D.GE, *Dan Brown & Associates, Inc.*

### Technical Program Committee

Tracy Brettmann, P.E., D.GE, *A.H. Beck Foundation Co.*

Peggy Hagerty Duffy, P.E., D.GE, *ADSC*

Terence Holman, Ph.D., P.E., *Turner Engineering Group*

Mary Ellen Bruce Large, P.E., D.GE, *DFI*

Allen Cadden, P.E., D.GE, *Schnabel Engineering*

Bernie Hertlein, *GEI Consultants*

Mike Justason, P.Eng., *McMaster University*

Anna Sellountou, Ph.D., P.E., *Pile Dynamics*

### Proceedings Editors

Muhannad T. Suleiman, Ph.D., *Lehigh University*

Anne Lemnitzer, Ph.D., P.E., *University of California, Irvine*

Armin W. Stuedlein, Ph.D., P.E., *Oregon State University*

**TUESDAY, MARCH 6**

**Ralph B. Peck Medal Lecture**

*4:00pm-6:00pm | Citron North & Center*

For his innovative research on the analysis and design of urban excavations using novel modeling approaches and innovative monitoring technologies, the immediate advancement of excavation design practice and for his voluntary commitment to the geotechnical community.

Presented by this year's recipient Richard J. Finno, Ph.D., P.E., D.GE, M.ASCE.

*Sponsored by: Schnabel Foundation Co.*

**WEDNESDAY, MARCH 7**

**Keynote Address**

*8:45am-9:45am | Citron North & Center*

***Learning in Thin Air***

Scott Kress is a masterful storyteller, a leadership trainer, an Executive MBA Professor and a life-long mountaineer. He is the 51st Canadian to summit Mount Everest and the 15th Canadian to climb the 7 Summits. He will share the insights gained while climbing and leading high-altitude expeditions for over 25 years.

What is it that separates success from failure? What allows some leaders and teams to achieve greatness where others stumble? Today's business environment is more complex than ever and presents a series of mountains, which must all be scaled. While there is always a leader breaking the trail to the top, they cannot do it alone. Great success comes from the synergy of great leadership, teamwork, and personal focus.

*Sponsored by: CH2M*

**E.A.L. Smith Lecture**

*10:45am-11:30am | Citron North & Center*

The Pile Driving Contractors Association's E.A.L. Smith Award Lecture will be presented triennially at the IFCEE conference. The E.A.L. Smith Award Lecture will be presented to an individual who has demonstrated creative and original work that helped the driven pile industry provide an economical, sustainable, effective and environmentally conscious foundation solution.

Up to sixty years ago, the geotechnical practice rarely performed pile

tests, be they dynamic tests or static loading tests. Then, the practice changed. During 1957 -1959, the Swedish Pile Commission conducted series of dynamic tests on steel and concrete piles. In about 1964, Dr. Goble of the Case Western Reserve University commenced an extensive series of dynamic tests and developed the Pile Driving Analyzer, which concurrently with analytical development soon matured from research into engineering practice. At the First Stress-wave Conference, held in Sweden in 1980, the dynamic testing methods came-of-age. Today, the dynamic testing and analysis is indispensable to the practice of piled foundation design. In parallel to the development of dynamic testing methods for axial load response of primarily driven piles, the practice also developed low-strain dynamic integrity test methods.

The Inaugural E.A.L. Smith lecture will be presented by Dr. Bengt H. Fellenius, Dr. Tech., P.E.

**Michael W. O'Neill Lecture**

*4:30pm-6:00pm | Citron North & Center*

***An Inconvenient Geotechnical Truth***

For many people the term "inconvenient truth" refers to the facts, cause, and effects of global warming. This talk is about a different kind of "inconvenient truth" relevant in the geotechnical world where nature and natural conditions as well as human created conditions control. A true fact is that even a significant amount of advance testing with soil borings, geophysics, load testing and soil sample laboratory testing can not assure sufficient information to enable precise, accurate prediction of how the natural ground and contained foundation elements will perform under either nature forces or human engineered forces. However, by following certain rules based on the writer's 60+ years of foundation design and construction experience, our prediction performance ability can be substantially improved.

This talk will outline the primary points learned and will be illustrated by several well known case histories ranging from Chicago to Kuala Lumpur.

*Presented by: Clyde Baker, P.E., D.GE, M.ASCE, GEI Consultants*

**THURSDAY, MARCH 8**

**Osterberg Memorial Lecture**

*7:30am-8:15am | Citron North & Center*

The annual Osterberg Memorial Lecture and Award was established in honor of Dr. Jorj O. Osterberg, one of the true pioneers of



# SPECIAL LECTURES

geotechnical engineering, to recognize innovations in deep foundations construction related to engineering design, testing or education - all aspects of Jorj Osterberg's lifelong contributions.

Presented by this year's recipient John A. (Jack) Hayes, P. Eng., D.I.C., Founder and Former President, Loadtest, Inc. Hayes is being recognized for his pioneering work with Osterberg cell (O-cell) load tests. One of the founders of Loadtest, Hayes has helped to transform high-capacity load testing worldwide. He has involved himself with all aspects of O-cell load testing including administration, project development, specification, field assembly and installation, instrumentation, testing, analysis and reporting. Loadtest has carried out over 1,000 O-cell bi-directional load tests during his tenure.

Sponsored by: MARL Technologies

## Ben C. Gerwick Lecture

8:15am-9:00am | Citron North & Center

The award is presented annually to an individual, team or company, and pays tribute to Ben Gerwick, recognizing his innovative spirit and his many contributions to the design and construction of marine foundations. Gerwick had a 62 year professional career as a contractor, educator and construction engineer.

Accepted by this year's recipient Akio Kitamura. Inventor of Silent Piler, President, Giken Ltd.

Presented by: Anthony Bertrams, Executive Director, Giken Ltd.

Kitamura is being recognized for trailblazing the field of the press-in-piling technology. In 1975, Kitamura invented the Silent Piler, the first commercially available pile driving machine based on press-in-piling technology, which virtually eliminated noise and vibration associated with pile driving. For 40 years, he has been promulgating the advantages of press-in-pile technology. The effect of Kitamura's innovation extends beyond the realm of marine foundations, affecting the entire world of civil engineering construction.

## Karl Terzaghi Lecture

4:30pm-6:00pm | Citron North & Center

For his more than 30 years of continuous efforts to advance the state-of-the-practice in the design and performance assessment of waste containment systems.

Presented by this year's recipient, Rudolph Bonaparte, Ph.D., P.E., D.GE, NAE, F.ASCE.

## FRIDAY, MARCH 9

## H. Bolton Seed Medal Lecture













3:30pm-5:00pm | Citron North & Center

For outstanding contributions to geotechnical earthquake engineering education and research, especially with respect to applications of performance-based engineering, liquefaction, seismic slope stability, and dynamic soil behavior.

Presented by: Steven L. Kramer, Ph.D., P.E., M.ASCE

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# SHORT COURSES

Short courses will focus on a wide range of topics and will be offered Tuesday, March 6 and Wednesday, March 7. Short courses provide an excellent opportunity to brush up on familiar subjects or to gain knowledge on new concepts from instructors who are recognized as leading experts in their fields. Professional Development Hours for participation and completion of Short Courses will be available.

## TUESDAY, MARCH 6

**FULL DAY SESSION** – 7:30am to 4:30pm | Pindo A

### Stability & Stabilization of Natural and Man-Made Slopes with Climate Change

**Course Synopsis:** This short course will present recent advances on landslide behavior, unsaturated soil mechanics, shear strength, two- and three-dimensional slope stability analyses, slope stabilization and analyses and the impact(s) of climate change on slope stability. These advances are contributing to a better understanding of landslide mechanisms and improved methods of analysis, hazard identification, risk assessment, and stabilization. The short course will focus on landslide triggering, stability analyses, and runout of the slide mass. This short course will first discuss the technical aspects of these topics and then illustrate the use of the technical information with a number of case histories.

**Instructors:** Dr. Timothy D. Stark, P.E., University of Illinois at Urbana-Champaign; Dr. Farshid Vahedifard, P.E., Mississippi State University; Dr. Daniel Pradel, P.E., G.E., D.GE, Ohio State University

**HALF DAY SESSION** – 7:30am to 11:30am | Pindo C

### Deep Foundation Design and Construction using Load and Resistance Factor Design (LRFD) “LRFD for Fun and Profit”

**Course Synopsis:** This interactive course addresses the practical application of Load Resistance Factor Design principles for driven and drilled deep foundations based on the American Association of State Highway & Transportation Officials (AASHTO) Bridge Design and Construction Specifications. The material presented represents good practice for all types of deep foundation projects, both public and private, for all infrastructure projects and industries.

**Instructor:** Jerry A. DiMaggio P.E., D.GE, F.ASCE, Applied Research Associates

**HALF DAY SESSION** – 7:30am to 11:30am | Pindo B

### Geoprofessional Business Practices and Ethics

**Course Synopsis:** GBA's Executive Director will be the Master of Ceremonies for an entertaining four-part series focused on Ethics, Contract Review, Delivering the Client Experience, and Case Histories. These are the business fundamentals of professional geoprofessional consultants and topics that GBA excels in providing its members and the greater community. The key topics of the four parts of this course are: 1) the importance of engagement and culture in business conduct/ethics; 2) how thinking like a client can result in negotiating success; 3) proven methods of delivering an awesome client experience; and, 4) unique case histories summarizing the experiences of others and the most valuable lessons learned.

**Instructors:** Various instructors, hosted by Joel Carson, Executive Director, GBA

**HALF DAY SESSION** – 12:30pm to 4:30pm | Pindo B

### Deep Foundations QA/QC for Engineers, Contractors, and Inspectors

**Course Synopsis:** This course provides an overview of common methods of QA/QC for Deep Foundations, and provides some perspectives on the value of QA/QC from design and construction points-of-view. The course includes a discussion on factors to consider during the design phase of a project, during installation, and post construction as well as a short specifications overview. The course introduces the main methods for performing inspections and testing for driven piles, drilled shafts, and augercast piles, although many of the methods described also apply to other types of deep foundations. The effect of well-planned and well-executed QA/QC programs on the design and construction of more cost-effective, efficient, and reliable deep foundations will be discussed with experts in the area of deep foundations.

**Instructors:** Mohamad Hussein, P.E., GRL Engineers, Inc.; Mike Justason, P.Eng., McMaster University





## SHORT COURSES

WEDNESDAY, MARCH 7

**HALF DAY SESSION** – 12:30pm to 5:00pm | Sunburst 1 & 2

### Joint Society Women's Professional Development Skills Workshop

**Course Synopsis:** This half day workshop — organized by DFI's Women in Deep Foundations Committee and hosted in a partnership with ADSC, G-I, AND PDCA — will help build professional skills for women in the geotechnical engineering and foundations industry. Nancy Watt, a Second City Comedy Improv Conservatory graduate, will conduct a dynamic, camaraderie-filled, improv-based workshop on communication and negotiation skills...infused with one ton of laughter. Wendy Murphy will introduce the concept of developmental networks and conduct an interactive workshop exercise on mapping your own personal mentoring network. Industry representatives will present successful corporate initiatives in the deep foundations industry that actively support women and encourage professional development. The course will wrap up with a multidisciplinary panel of industry representatives discussing the importance of confidence as a professional woman and the significance of establishing, maintaining and growing confidence as a professional.

**Instructor(s):** Nancy Watt, Nancy Watt Communications; Dr. Wendy Macinkus Murphy, Babson College; industry representatives

**Facilitator:** Mary Ellen Bruce Large, P.E., D.GE, Deep Foundations Institute

### Student Activities

#### TUESDAY, March 6

6:00pm-8:00pm      Welcome Reception  
*Pool/Lawn Area*

#### WEDNESDAY, March 7

8:30am-9:45am      **Opening Ceremonies & Keynote Presentation**  
*Citron North & Center*

4:00pm-5:30pm      **Michael W. O'Neill Lecture: Presentation of  
ADSC 2017-2018 Scholarship Recipients**  
*Citron North & Center*

#### THURSDAY, March 8

1:00pm-1:30pm      G-I Student Orientation  
*Citron North & Center*

1:30pm-3:00pm      G-I Student Professional Development Workshop  
*Citron North & Center*

7:00pm-8:00pm      G-I Student Program: Student Travel Grant  
Winners and Organizational Members Career Fair  
*(Invitation Only)*  
*Pindo A, B & C*

8:00pm-9:00pm      G-I Student Program: Organizational Member  
and Student Reception  
*Pindo A, B & C*

#### FRIDAY, March 9

12:00pm-4:00pm      G-I GeoChallenge: GeoWall  
*Palm Event Center & Pindo A*

Teams of students from across the country will again compete in the action-packed Geo-Challenge. The competition involves constructing a scaled-down model of a mechanically stabilized wall in which dry sand, reinforced with paper is retained behind a paper wall that has been constructed in a plywood form. The event is judged on the wall's capacity to support a design load, the amount of reinforcement used, and the quality of the design report. Congress attendees are encouraged to attend this exciting event to cheer on the contestants.

12:00pm-4:00pm      G-I Challenge: GeoPoster, GeoPrediction &  
GeoVideo  
*Palm Event Center  
& Pindo A*

The GeoPrediction competition asks students to develop an accurate prediction of geotechnical behavior given detailed information regarding subsurface, boundary, and initial conditions, as well as the geotechnical/structural loading. This year, competing teams will estimate the ultimate resistance and the subsequent displacement of two drilled shaft pile at the working load and the ultimate load by static load testing. Students competing in the GeoPoster competition are challenged to present their research on foundations (e.g., shallow, drilled, driven, new types, observed performance) for judging on content and professionalism. GeoVideo is a new competition challenging students to prepare short videos describing geotechnical principles for students (K - college) or the general public.

4:00pm-8:00pm      **Final Night Progressive Reception**  
*Exhibit Areas*

**MONDAY, March 5**

- 12:00pm-5:00pm Registration  
*Citron Foyer*
- 12:00pm-5:00pm Exhibitor Registration  
*Citron Foyer*
- 8:00am-5:00pm G-I Board of Governors (Closed Meeting)  
*Pindo C*
- 12:00pm-1:30pm G-I Board of Governors Luncheon  
*Areca*
- 1:00pm-4:00pm ADSC Executive Committee (Closed Meeting)  
*27th North*
- 2:00pm-4:00pm PDCA Executive Committee (Closed Meeting)  
*Pindo A*
- 4:00pm-5:00pm Exhibitors Meeting  
*Pindo B*

**TUESDAY, March 6**

- 7:00am-6:00pm Registration  
*Citron Foyer*
- 7:30am-11:30am Short Course - Deep Foundation Design & Construction Using Load and Resistance Factor Design "LRFD for Fun and Profit"  
*Pindo C*
- 7:30am-11:30am Short Course - Geoprofessional Business Practices Ethics  
*Pindo B*
- 7:30am-4:30pm Short Course - Stability and Stabilization of Natural and Man-Made Slopes with Climate Change  
*Pindo A*
- 8:00am-12:00pm G-I Organizational Member Council Part 1  
*27th North*
- 8:00am-12:45pm G-I Technical Coordination Council (TCC)  
*Meyer 1 & 2*
- 8:00am-5:00pm AGP Board of Governors (Closed Meeting)  
*Lake Tower 1*
- 8:30am-9:45am Industry-Wide Working Platforms Working Group  
*Sago 3 & 4*
- 8:30am-10:00am DFI Codes and Standards Committee  
*Tangerine 7*
- 8:30am-10:30am PDCA Board of Directors  
*Citron West*
- 9:00am-10:00am ADSC Associates Committee  
*Citron East*
- 10:00am-11:30am DFI Deep Foundations for Landslides/Slope Stabilization Committee  
*Sago 3 & 4*

- 10:00am-12:00pm G-I Awards Committee  
*Seville*
- 10:30am-12:00pm PDCA Contracts & Risk Committee  
*Citron East*
- 10:30am-12:00pm PDCA Technical Committee  
*Citron West*
- 12:30pm-4:30pm Harvey, Irma, Maria: Lessons from the 2017 Atlantic Hurricane Season  
*Pindo C*
- 12:30pm-4:30pm Short Course - Deep Foundations QA/QC for Engineers, Contractors, and Inspectors  
*Pindo B*
- 1:00pm-2:00pm ISM Steering Committee  
*Seville*
- 1:00pm-2:30pm DFI Helical Piles & Tiebacks Committee  
*Citron East*
- 1:00pm-2:30pm USUCGER Board Meeting (Closed Meeting)  
*Lake Tower 3*
- 1:00pm-3:00pm PDCA Chapters Committee  
*Areca*
- 1:00pm-4:00pm G-I Technical Committee Chairs Workshop  
*Meyer 1 & 2*
- 1:00pm-5:00pm Exhibits Open  
*Blue & Green Lots & Pavilion*
- 2:00pm-3:30pm ADSC / DFI Micropile Committee  
*Sabal F & G*
- 3:00pm-4:30pm DFI Driven Pile Committee  
*Tangerine 5*
- 3:00pm-4:30pm PDCA Safety/Environment Committee  
*Citron East*
- 4:00pm-6:00pm AGP Diplomat Ceremony  
*Citron North & Center*
- 4:00pm-6:00pm Ralph B. Peck Medal Lecture  
*Citron North & Center*
- 6:00pm-8:00pm Welcome Reception  
*Pool Lawn*
- 7:30pm-9:00pm G-I Geosynthetics Technical Committee  
*Areca*
- 8:00pm-9:30pm G-I Journal of Geotechnical/ Geoenvironmental Committee  
*Meyer 1*
- 8:00pm-9:30pm G-I Risk Assessment and Management Technical Committee  
*Sago 2*
- 8:00pm-9:30pm G-I Rock Mechanics Committee  
*Sago 3*

# SCHEDULE-AT-A-GLANCE

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2018

8:00pm-9:30pm  
*Meyer 2*

G-I Soil Properties and Modeling Technical Committee

9:00pm-10:30pm  
*Sunburst 1 & 2*

G-I Sustainability in Geotechnical Engineering Technical Committee

9:30pm-11:00pm  
*Meyer 1*

G-I Technical Publications Committee

## WEDNESDAY, March 7

7:00am-5:00pm  
*Citron Foyer*

Registration

8:00am-5:00pm  
*Lake Tower 2*

US Kazakhstan Workshop (*Invitation Only*)

8:30am-9:45am  
*Citron North & Center*

Opening Ceremonies & Keynote Presentation

9:00am-6:00pm  
*Blue & Green Lots & Pavilion*

Exhibits Open

9:45am-10:30am  
*Blue & Green Lots & Pavilion*

Networking Break

9:45am-11:00am  
*Areca*

National Science Foundation

10:30am-12:00pm  
*Tangerine 5*

G-I Continuing Education Committee

10:45am-11:30am  
*Citron North & Center*

E.A.L. Smith Lecture

11:30am-1:00pm  
*Sago 2*

G-I Engineering Geology and Site Characterization Technical Committee

11:30am-1:30pm  
*Blue & Green Lots*

Lunch

12:00pm-1:00pm  
*Lake Tower 3*

US Kazakhstan Workshop Luncheon

12:30pm-2:30pm  
*Pindo A*

G-I Geoenvironmental Engineering Technical Committee

12:30pm-2:30pm  
*Seville*

G-I GEOSTRATA Editorial Board

12:30pm-2:00pm  
*Tangerine 3*

G-I Local Involvement Committee

2:00pm-3:30pm  
*Tangerine 3*

G-I Regional Conference Committee

12:30pm-4:00pm  
*Citron West*

Symposium Honoring Dr. Jean-Louis Briaud

12:30pm-4:30pm  
*Sunburst 1 & 2*

Short Course - Joint Society Women's Business Skills Workshop

1:00pm-2:30pm  
*Citron East*

ADSC / DFI Drilled Shaft Committee



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**WEDNESDAY, March 7 (Cont.)**

1:00pm-2:30pm <i>Sabal Ballroom Area</i>	Concurrent Technical Sessions
2:30pm-3:00pm <i>Blue &amp; Green Lots &amp; Pavilion</i>	Networking Break
2:30pm-4:30pm <i>Sabal D</i>	G-I Town Hall Meeting
3:00pm-4:30pm <i>Sago 1 &amp; 2</i>	ADSC Chapter Presidents Council
3:00pm-4:30pm <i>Pindo C</i>	DFI Augered Cast-in-Place Piles Committee
3:00pm-4:30pm <i>Meyer 1 &amp; 2</i>	DFI Manufacturers, Suppliers and Service Providers Committee
3:00pm-4:30pm <i>Citron East</i>	DFI Testing and Evaluation Committee
3:00pm-4:30pm <i>Areca</i>	PDCA Membership Committee
3:30pm-5:00pm <i>Tangerine 5</i>	PDCA Steel Sheet Pile Committee
4:00pm-5:30pm <i>Citron North &amp; Center</i>	<b>Michael W. O'Neill Lecture</b>
5:30pm-6:30pm <i>Areca</i>	Dr. Jean-Louis Briaud Book Signing Reception
7:00pm-9:00pm <i>Pindo C</i>	G-I Soil Improvement Technical Committee
7:30pm-9:00pm <i>Pindo A &amp; B</i>	G-I Deep Foundations Technical Committee
7:30pm-9:00pm <i>Meyer 1</i>	G-I IDEA Evaluation Program
8:00pm-9:30pm <i>Sunburst 2</i>	AGP Engineering Leadership Committee
8:00pm-9:30pm <i>Meyer 2</i>	G-I Earthquake Engineering and Soil Dynamics Technical Committee
8:00pm-9:30pm <i>Sago 4</i>	G-I Embankments, Dams and Slopes Technical Committee
8:00pm-9:30pm <i>Sago 3</i>	G-I Geotechnics of Soil Erosion Technical Committee
8:00pm-9:30pm <i>Tangerine 5</i>	G-I Pavements Technical Committee
8:00pm-9:30pm <i>Sunburst 1</i>	G-I Underground Engineering and Construction Technical Committee

**THURSDAY, March 8**

7:30am-5:00pm <i>Citron Foyer</i>	Registration
7:30am-8:15am <i>Citron North &amp; Center</i>	<b>Osterberg Memorial Lecture</b>
8:15am-9:30am <i>Citron North &amp; Center</i>	<b>Ben C. Gerwick Lecture</b>
8:30am-10:00am <i>Sabal Ballroom Area</i>	Concurrent Technical Sessions
9:00am-10:00am <i>Pindo A, B &amp; C</i>	ADSC Safety Committee
9:30am-11:00am <i>Tangerine 5</i>	DFI Energy Foundations Working Group
9:30am-11:00am <i>Meyer 1 &amp; 2</i>	DFI Soil Mixing Committee
10:00am-6:00pm <i>Blue &amp; Green Lots &amp; Pavilion</i>	Exhibits Open
10:00am-10:30am <i>Blue &amp; Green Lots &amp; Pavilion</i>	Networking Break
10:30am-12:00pm <i>Sabal Ballroom &amp; Citron East</i>	Concurrent Technical Sessions
10:30am-12:00pm <i>Areca</i>	PDCA Associate Member Council
11:30am-1:30pm <i>Blue &amp; Green Lots</i>	Lunch
12:00pm-4:00pm <i>27th North</i>	G-I DIGGS Advisory Board
1:00pm-1:30pm <i>Citron North &amp; Center</i>	G-I Student Orientation
1:00pm-2:30pm <i>Pindo A, B &amp; C</i>	ADSC Anchored Earth Retention Committee   DFI Tiebacks & Soil Nailing Committee
1:00pm-2:30pm <i>Sabal Ballroom &amp; Citron East</i>	Concurrent Technical Sessions
1:00pm-2:30pm <i>Areca</i>	Industry-Wide Working Group on Risk - Exploratory Meeting
1:00pm-3:00pm <i>Meyer 1 &amp; 2</i>	DFI Subsurface Characterization Committee
1:00pm-3:00pm <i>Sago 1</i>	PDCA Education Committee
1:30pm-2:30pm <i>Seville</i>	G-I Outreach and Engagement Committee
1:30pm-3:00pm <i>Citron North &amp; Center</i>	G-I Student Professional Development Workshop



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**THURSDAY, March 8 (Cont.)**

2:30pm-3:00pm	Networking Break <i>Blue &amp; Green Lots &amp; Pavilion</i>
3:00pm-4:30pm	DFI Slurry Wall Committee <i>Meyer 1 &amp; 2</i>
3:00pm-4:30pm	PDCA Communications Committee <i>Sago 3 &amp; 4</i>
3:00pm-4:30pm	Concurrent Technical Sessions <i>Sabal Ballroom Area &amp; Citron East</i>
3:30pm-4:30pm	G-I GeoWall Captains Meeting <i>Sunburst 1 &amp; 2</i>
4:30pm-6:00pm	<b>Karl Terzaghi Lecture</b> <i>Citron North &amp; Center</i>
7:00pm-8:00pm	G-I Student Program: Organizational Members and Student Travel Grant Winners Job Fair <i>Pindo A, B &amp; C</i>
7:30pm-9:00pm	G-I International Activities Council <i>27th North</i>
8:00pm-9:00pm	G-I Student Program: Organizational Member and Student Reception <i>Pindo A, B &amp; C</i>
8:00pm-9:30pm	G-I Codes and Standards Council <i>Tangerine 3</i>
8:00pm-9:30pm	G-I Computational Geotechnics Technical Committee <i>Seville</i>
8:00pm-9:30pm	G-I Earth Retaining Structures Technical Committee <i>Tangerine 5</i>
8:00pm-9:30pm	G-I Geophysical Engineering Technical Committee <i>Sago 4</i>
8:00pm-9:30pm	G-I Shallow Foundations Technical Committee <i>Areca</i>
8:00pm-9:30pm	G-I Unsaturated Soils Technical Committee <i>Meyer 1 &amp; 2</i>
10:00pm-11:30pm	G-I Graduate Student Leadership Council <i>Sago 1</i>

**FRIDAY, March 9**

7:30am-4:00pm	Registration <i>Citron Foyer</i>
8:00am-9:00am	ADSC Industry Advancement Steering Committee <i>Pindo C</i>
8:00am-9:00am	G-I Organizational Member Council Part II <i>Sago 4</i>

8:00am-10:00am	DFI Project Information Management Systems Working Group <i>Seville</i>
8:00am-9:30am	Concurrent Technical Sessions <i>Sabal Ballroom &amp; Citron East</i>
9:00am-10:00am	ADSC IAF Trustees (Closed Meeting) <i>Tangerine 5</i>
9:30am-8:00pm	Exhibits Open <i>Blue &amp; Green Lots &amp; Pavilion</i>
9:30am-10:00am	Networking Break <i>Blue &amp; Green Lots &amp; Pavilion</i>
10:00am-11:30am	Concurrent Technical Sessions <i>Sabal Ballroom &amp; Citron East</i>
10:30am-11:30am	ADSC Governance Committee <i>Pindo C</i>
10:30am-12:00pm	DFI Electric Power System Foundations Working Group <i>Sago 1 &amp; 2</i>
11:30am-1:30pm	Lunch <i>Blue &amp; Green Lots</i>
12:00pm-4:00pm	G-I GeoChallenge: GeoWall <i>Palm Event Center &amp; Pindo A</i>
12:00pm-4:00pm	G-I Challenge: GeoPoster, GeoPrediction & GeoVideo <i>Palm Event Center</i>
1:00pm-2:15pm	DFI Seepage Control Working Group Meeting <i>Sago 1 &amp; 2</i>
1:00pm-2:30pm	Concurrent Technical Sessions <i>Sabal Ballroom &amp; Citron East</i>
1:00pm-3:00pm	G-I Geotechnical Frontiers 2019 Program Committee <i>Sunburst 1</i>
1:00pm-4:00pm	G-I Grouting Technical Committee <i>Tangerine 3</i>
2:30pm-3:00pm	Networking Break <i>Blue &amp; Green Lots &amp; Pavilion</i>
2:30pm-4:00pm	DFI Women in Deep Foundations Committee <i>Sago 1 &amp; 2</i>
3:30pm-5:00pm	<b>H. Bolton Seed Medal Lecture</b> <i>Citron North &amp; Center</i>
4:00pm-8:00pm	<b>Final Night Progressive Reception</b> <i>Blue &amp; Green Lots &amp; Pavilion</i>

**SATURDAY, March 10**

8:00am-10:30am	ADSC Board of Directors <i>Pindo A, B &amp; C</i>
8:00am-12:00pm	G-I Geo-Congress Organizing Committee <i>Sago 4</i>

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**WEDNESDAY, MARCH 7**

**SABAL A – 1:00pm-2:30pm**

**SITE INVESTIGATION - CASE HISTORIES AND LESSONS LEARNED**

*Moderator:* Conrad Felice, Ph.D., P.E., C.W. Felice, LLC

***Establishing a Threshold Sustainability Index for a Geotechnical Construction***

Jasaswee Das, M.S., EIT, S.M.ASCE, University of Texas at Arlington; Rinu Samuel, M.S., EIT, S.M.ASCE, University of Texas at Arlington; Anu George, M.S., S.M.ASCE, University of Texas at Arlington; Sayantan Chakraborty, M.S., S.M.ASCE, University of Texas at Arlington; Tejo Bheemasetti, Ph.D., A.M.ASCE, Anand Puppala, Ph.D., P.E., F.ASCE, D.GE, Site Characterization with 3-D Full Seismic Waveform Tomography Khiem Tran, Ph.D., Clarkson University; Trung Dung Nguyen, Clarkson University Field and Lab Characterization of the Operational Response of Wind Turbine Generator Foundation Soil Christopher Enos, M.ASCE, EIT, University of Wisconsin; James Tinjum, Ph.D., P.E., University of Wisconsin; Mehmet Yilmaz, M.S., ante Fratta, Ph.D., A.M.ASCE, P.E., Henzhong Wu, M.S.

***CPT Based Settlement Prediction Over California Soft Rock, Stiff Alluvium, and Soft Alluvial Sites***

S. Ali Bastani, Ph.D., F. ASCE, P.E., G.E., GMU Geotechnical, Inc.; Gregory Silver, P.E., G.E., GMU Geotechnical, Inc.

***Field Monitoring System for the Measurement of Moisture and Temperature Profiles in Different Layers of Soil***

Ali Khosravi, Ph.D., University of California Davis - Sharif University of Technology; Farid Fazel Mojtahedi Sharif University of Technology; Ali Nazari, M.Sc, Sharif University of Technology; Azin Khatami, Sharif University of Technology; Saeed Rezvani, Sharif University of Technology; Narges Ahmadi, Sharif University of Technology

***Development of a Point-Based Index for Sinkhole Vulnerability Evaluation in Central Florida's Karst Terrain***

Ryan Shamet, M.S., University of Central Florida; David Horhota, Ph.D., P.E., Florida Department of Transportation; Boo Hyun Nam, Ph.D., University of Central Florida

**SABAL B – 1:00pm-2:30pm**

**DESIGN AND ANALYSIS OF DEEP FOUNDATIONS I**

*Moderator:* Sanjeev Malhotra, P.E., G.E., D.GE

***Modeling and Simulating Load Transfer of Drilled Shafts in Shales***

Thuy Vu, University of Texas Rio Grande Valley; Erik Loehr, University of Missouri

***Inverse Method for Pile Dynamics Using a Polytope Method***

Don Warrington, BSME, Texas A&M University, MS and Ph.D., University of Tennessee at Chattanooga, P.E., University of Tennessee at Chattanooga; James Newman, III, Ph.D., Mechanical Engineering, Virginia Polytechnic Institute and State University, July 1997, M.S., Aerospace Engineering, Old Dominion University, May 1994, B.S., Mechanical Engineering, Old Dominion University, May 1993, University of Tennessee at Chattanooga

***Numerical Study of Lateral Response of Berthing Structures by Considering Soil-Structure Interaction***

Vahid Zanjani, Ph.D., P.E., McLaren engineering Services; Mehdi Soudkhah, Ph.D., P.E., AECOM; Michael Whitney, Ph.D., P.E., Bechtel Infrastructure

***Deep Foundation Analysis from Cone Penetrometers – A Reappraisal***

Fawad Niazi, Ph.D., M.ASCE, Purdue University Fort Wayne; Paul Mayne, Ph.D., P.E., M.ASCE, Georgia Institute of Technology

***A Comparison of Load Transfer Characteristics of Drilled Shafts and CFA Piles in Weak Vuggy Limestone***

James Niehoff, P.E., M.ASCE, M.DFI, BSCE, MSCE, GEI Consultants, Inc.

***Dynamic Analysis of Laterally Loaded End-Bearing Piles in Homogeneous Viscoelastic Soil using Timoshenko Beam Theory***

Bipin Gupta, Master of Technology in Civil Engineering, Univ. of Waterloo, Waterloo, ON; Dipanjan Basu, Ph.D., Univ. of Waterloo

**SABAL C – 1:00pm-2:30pm**

**STONE COLUMNS/PIERS/GROUTING I**

*Moderators:* Kord Wissman, Ph.D., P.E., D.GE, Geopier Foundation Company and Jie Han, Ph.D., P.E., University of Kansas

***Numerical Predictions of Deformations in Geosynthetic-Reinforced Column-Supported Embankments: Validation of Manual Dissipation of Excess Pore Pressures Approach for Undrained and Drained Analyses***

Zhanyu Huang, M.S., Virginia Tech; George Filz, Ph.D., P.E., Dist.M.ASCE, Virginia Tech; Katerina Ziotopoulou, Ph.D., M.ASCE

***Application of Reliability Analyses for Serviceability Design of Column-Supported Embankments***

Michael McGuire, Ph.D., P.E., M.ASCE, Lafayette College; Joel Sloan, Ph.D., P.E., M.ASCE, US Air Force Academy; Daniel VandenBerge, Ph.D., P.E., M.ASCE, Tennessee Tech

***A Case Study of Settlement and Load Transfer at Depth Beneath Column-Supported Embankments***

Aaron Gallant, Ph.D., University of Maine; Tucker Jones, University of Maine; Ehab Shatnawi, Ph.D., P.E., CH2M Hill; Emad Farouz, P.E., CH2M Hill

***Effect of Seawater on the Mechanical Properties of Cement Grout Used for Formation of Micropiles in Marine Applications***

Md Ahsanuzzaman, Doctoral Student, North Carolina State University; Mohammed Gabr, Ph.D., P.E., North Carolina State University; Roy Borden, Ph.D., P.E., North Carolina State University

***Lateral Loading Test Results on Single and Groups of Soil-Cement Columns***

Dao Do, Ph.D., University of Science and Technology, the University of Danang; Hai Nguyen, Ph.D., Univ. of Texas at Arlington

***Investigative Study of Behaviour of Treated Expansive Soil Using Empirical Correlations***

Eyo Eyo, S.M.ASCE, Coventry University; Samson Ngambi, Ph.D., Coventry University; Samuel Abbey, Coventry University

**SABAL E – 1:00pm-2:30pm**

**SLOPES, DAMS, AND EMBANKMENTS I**

*Moderator:* Timothy Stark, Ph.D., P.E., University of Illinois | Urbana-Champaign



**Case History: The Estrondo Landslide Stabilization**

Daniel Pradel, Ph.D., P.E., G.E., D.GE, F.ASCE, The Ohio State University

**Highway Embankment on Soft Soils Case Study and Lessons Learned**

Timothy Stark, Ph.D., P.E., F.ASCE, D.GE, University of Illinois at Urbana-Champaign; Perry Ricciardi, P.E., Ohio Department of Transportation - District 3; Ryan Sisk, M.S., P.E.

**Lessons Learned: Oklahoma State Highway 99 over the Washita River**

Kristi Bumpas, P.E., LEED AP, M.ASCE, Red Rock Consulting, LLC; Chad Grinsteiner, P.E., M.ASCE, White Engineering Associates, Inc.; Jennifer Koscelny, Soil and Materials Engineers, Inc.

**Case Study: Do Slope Protective Ordinances Protect?**

Alan Esser, P.E., D.GE, M.ASCE, SME

**San Luis Dam Case History: Seepage and Slope Stability Analyses and Lessons Learned**

Timothy Stark, Ph.D., P.E., F.ASCE, D.GE., University of Illinois at Urbana-Champaign; Navid Jafari, Ph.D., M.ASCE, Louisiana State University

**SABAL F – 1:00pm-2:30pm**

**SELECTED OTHER TOPICS IN GEOTECHNICAL ENGINEERING I**

*Moderators:* Morgan Race, Ph.D., PE, Braun Intertec and Kam Ng, Ph.D., University of Wyoming

**Load Monitoring of Ground Anchors Using Contact Free Sensors**

Shahid Islam, Ph.D., Dywidag-Systems International; Lucian Bogdan, P.E., Dywidag-Systems International

**Soil Surface Roughness and Turbidity Measurements in Erosion Testing**

Tri Tran, Kansas State University; Stacey Tucker-Kulesza, Kansas State University; Michelle Bernhardt, University of Arkansas

**New Orleans Levee Monitoring via Remote Sensing and In Situ Instrumentation**

Dang Dinh Chung Nguyen, Rensselaer Polytechnic Institute; Victoria Bennett, Ph.D., Rensselaer Polytechnic Institute; Cathleen Jones, Ph.D., California Institute of Technology; Tarek Abdoun, Ph.D., Rensselaer Polytechnic Institute; Mourad Zeghal, Ph.D., Rensselaer Polytechnic Institute; Kathleen O'Meara

**Feasibility of Fly Ash as a Back-fill Material and Bamboo Geogrid as a Reinforcement**

Abebe Mekonnen, Ph. D., Indian Institute of Technology Bombay; Jnanendra Mandal, Ph. D., Indian Institute of Technology Bombay

**Unified Approach to Sustainability, Resiliency and Risk Assessments of a Tailings Dam**

Thomas Robbins, BSCE, Boise State University; Amit Gajurel, BSCE, Boise State University; Bhaskar Chittoori, Ph.D., P.E., M.ASCE, Boise State University; Robert Hamilton, Ph.D., P.E., M.ASCE

**SABAL G – 1:00pm-2:30pm**

**BIO-BASED SOIL IMPROVEMENT I**

*Moderators:* Dimitrios Zekkos, Ph.D., University of Michigan; Jason Dejong, Ph.D., University of California | Davis; Kenichi Soga, Ph.D., University of California | Berkeley

**Effect of Microbial Induced Calcite Precipitation on Compressibility and Hydraulic Conductivity of Fly Ash**

Shahin Safavizadeh, S.M.ASCE, North Carolina State University; Brina Montoya, Ph.D., P.E., F.ASCE, North Carolina State University; Mohammed Gabr, Ph.D., P.E., F.ASCE, North Carolina State University

**Evaluating the Effectiveness of Soil-Native Bacteria in Precipitating Calcite to Stabilize Expansive Soils**

Bhaskar Chittoori, Ph.D., P.E., M.ASCE, Boise State University; Malcolm Burbank, Ph.D., CDM Smith; Md. Touhidul Islam, Boise State University

**Viscosity-Enhanced EICP Treatment of Soil**

Jose Pasillas-Rodriguez, S.M.ASCE, New Mexico State University; Hamed Khodadadi T., Ph.D., Aff.M.ASCE, Arizona State University; Kimberly Martin, S.M.ASCE, Arizona State University; Paola Bandini, Ph.D., P.E., M.ASCE, New Mexico State University; Craig Newton, Ph.D., P.E., M.ASCE, New Mexico State University; Edward Kavazanjian, Jr., Ph.D., P.E., F.ASCE, NAE, Arizona State University

**Erodibility of Microbial Induced Carbonate Precipitation-Stabilized Sand Under Submerged Impinging Jet**

Brina Montoya, Ph.D., P.E., North Carolina State University; Jinung Do, North Carolina State University; Mo Gabr, Ph.D., P.E., North Carolina State University

**Anisotropic Shear Behavior of Soil-Structure Interfaces: Bio-Inspiration from Snake Skin**

Alejandro Martinez, Ph.D., University of California, Davis; Sophia Palumbo, University of California, Davis

## THURSDAY, MARCH 8

**SABAL A – 8:30am-10:00am**

**DRIVEN PILES - CASE HISTORIES AND LESSONS LEARNED**

*Moderators:* Michael Wysocky, Ph.D., P.E., Thatcher Engineering Corporation, and Johanna Simon, P.E., Schnabel Engineering, Inc.

**Benefits of a Pile Testing Program During the Design Phase**

Marco Fellin, BS and MS Civil/Geotechnical Engineering, P.E., Tetra Tech

**Savings from Testing the Driven-Pile Foundation for a High-Rise Building**

Van Komurka, P.E., D.GE, F.ASCE, GRL Engineers, Inc.; Adam Theiss, P.E., S.E., Magnusson Klemencic Associates

**Pile Group Effects and Soil Dilatancy at the Fort Lauderdale International Airport**

David Rancman, P.E., H2R Corp; Thai Nguyen, P.E., MS, H2R Corp; Daniel Hart, II, P.E., MBA, DBIA, H2R Corp; Yves-Stanley Delmas, P.E., H2R Corp

**Failure of Pile Foundations Driven into Bedrock Through Hydrocollapsible Soils**

John Schultz, P.E., G.E., M.ASCE, Petra Geosciences; Siamak Jafroudi, Ph.D., P.E., G.E., D.GE, F.ASCE, Petra Geosciences

**High Strain Dynamic Testing of Spin Fin(TM) Piles**

Steven Halcomb, P.E., G.E., M.ASCE, PND Engineers, Inc.; Sean Sjostedt, P.E., M.ASCE, PND Engineers, Inc.; Charles Somerville, P.E., M.ASCE, PND Engineers, Inc.

THURSDAY, MARCH 8 (CONT)

**SABAL A – 8:30am-10:00am (Cont)**

**Bonner Bridge Replacement Project - Pile Driving Experience**

Karen Webster, BSCE, P.E., Scott Webster, MSCE, P.E., GRL Engineers, Inc.

**SABAL B – 8:30am-10:00am**

**DESIGN AND ANALYSIS OF DEEP FOUNDATIONS II**

*Moderator:* Elizabeth Smith, P.E., G.E., D.GE, Terracon

**LRFD for Micropiles - State of Practice**

Jonathan Bennett, P.E., D.GE, M.ASCE, Moretrench American Corporation

**Hydrocode Modeling of Torpedo Anchor Installation in Soils**

Mehdi Omidvar, Ph.D., Manhattan College; Muhammad Baksh, .E.T., Manhattan College; Anirban De, Ph.D., P.E., A.M.ASCE, Manhattan College

**Evaluation of Change in Design Parameters ( $\alpha$  and  $\beta$ ) with Time to Design Pile**

Md. Nafuil Haque, Louisiana State University; Murad Abu-Farsakh, Ph.D., P.E., Louisiana State University

**Effect of Pile Spacing on the Static Lateral Behavior of Vertical and Battered Pile Groups**

Ahmad Souri, Louisiana State University; George Voyiadjis, Louisiana State University

**An Investigation of Pile Design Utilizing Advanced Data Analytics**

Nikolaos Machairas, NYU School of Engineering; Maged Iskander, Ph.D., P.E., F.ASCE, NYU School of Engineering

**Minimum Required Length for Geotechnical Lateral Stability of Rock-Socketed Pile Shafts**

Arash Khosravifar, Ph.D., P.E., Portland State University; Zia Zafir, Ph.D., P.E., G.E.

**SABAL C – 8:30am-10:00am**

**50 YEARS OF FHWA GEOTECHNICS!**

*Moderator:* Silas Nichols, P.E., Federal Highway Administration

This panel session will discuss the impact of the Federal Highway Administration (FHWA) on geotechnical engineering and construction over the last half century.

Panelists: Jerry DiMaggio, P.E., D.GE, Applied Research Associates; Garland Likins, P.E., Pile Dynamics, Inc.; Dan Brown, Ph.D., P.E., D.GE, Dan Brown and Associates, PC; Barry Christopher, Ph.D., P.E., Consultant; Ryan Berg, P.E., D.GE, F.ASCE, Ryan R. Berg and Associates, Inc.; George Burke, P.E., D.GE, Hayward Baker, Inc.; Allen Marr, Ph.D., P.E., D.GE, Geocomp Corporation

**SABAL E – 8:30am-10:00am**

**SLOPES, DAMS, AND EMBANKMENTS II**

*Moderator:* Binod Tiwari, PhD., California State University | Fullerton

**Experimental Investigation of Effects of Sliding Distance on Impact Force from Granular Sliding Mass to a Rigid Obstruction**

Amir Ahmadipur, The Pennsylvania State University; Tong Qiu, The Pennsylvania State University

**Buttermilk Creek Bank Stabilization: Retaining Wall Design and Construction**

Andrew Brown, Ph.D., P.E., Cpesc, M.asce, Geosyntec Consultants; Marty Christman, P.E., Cpesc, M.asce, Geosyntec Consultants; Beth Gross, Ph.D., P.E., D.GE, M.asce, Geosyntec Consultants

**Rock Slope Stabilization Evaluation, Design and Construction, Greater Boston, Massachusetts**

Andrew Blaisdell, P.E., G.E., M.asce, Gza Geoenvironmental, Inc.; Christopher Snow, P.E., M.ASCE, Gza Geoenvironmental, Inc.; Frank Vetere, P.E., L.s.p., M.asce, Gza Geoenvironmental, Inc.

**A Landslide Model with the Shear Band Propagation: Modification for Unsaturated Condition**

Sihyun Kim, Ph.D., Bradley University; Brian Fiedler, Bradley University; Seunghee Kim, Ph.D., University Of Nebraska-Lincoln

**Effect of the Core on the Upstream Stability of Dams Under Sudden Drawdown Conditions**

Salama Al-Labban, Ph.D. Candidate, University Of Central Florida; Manoj Chopra, Ph.D., University Of Central Florida

**Design Optimization of I-Wall Levee System Supported by Sand Foundation**

Parishad Rahbari, Ph.D., ECS Limited; Nadarajah Ravichandran, Ph.D., Clemson University

**SABAL F – 8:30am-10:00am**

**ADVANCES IN ENERGY PILES I**

*Moderators:* Omid Ghasemi-Fare, Ph.D., University of Louisville; John McCartney, Ph.D., P.E., University of California San Diego

**Thermal Energy Storages Below the Building Helping to Reach the 0-Energy Targets by 2020. Holistic Approach Through the Energy Simulations**

Rauli Lautkankare, Turku University of Applied Sciences; Nikolas Salomaa, M.Econ, NollaE Ltd.; Teppo Arola, Ph.D., Geological Survey of Finland; Jouko Lehtonen, DSc, Turku University of Applied Sciences

**Life Cycle Assessment of Drilled Shafts and Driven Piles in Sand**

Mina Lee, M.ASCE, University of Waterloo; Dipanjan Basu, Ph.D., M.ASCE, University of Waterloo

**Effect of Heating and Cooling Cycles on the Skin Friction of Energy Piles in Soft Clays**

Roba Houhou, American University of Beirut; Abir Awad, American University of Beirut; Salah Sadek, American University of Beirut; Shadi Najjar, American University of Beirut

**Temperature-Dependent Load-Displacement Curves of Heat Exchanger Piles in Sand**

Karam Jaradat, Stony Brook University; Sherif Abdelaziz, Stony Brook University

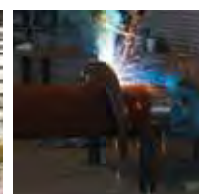
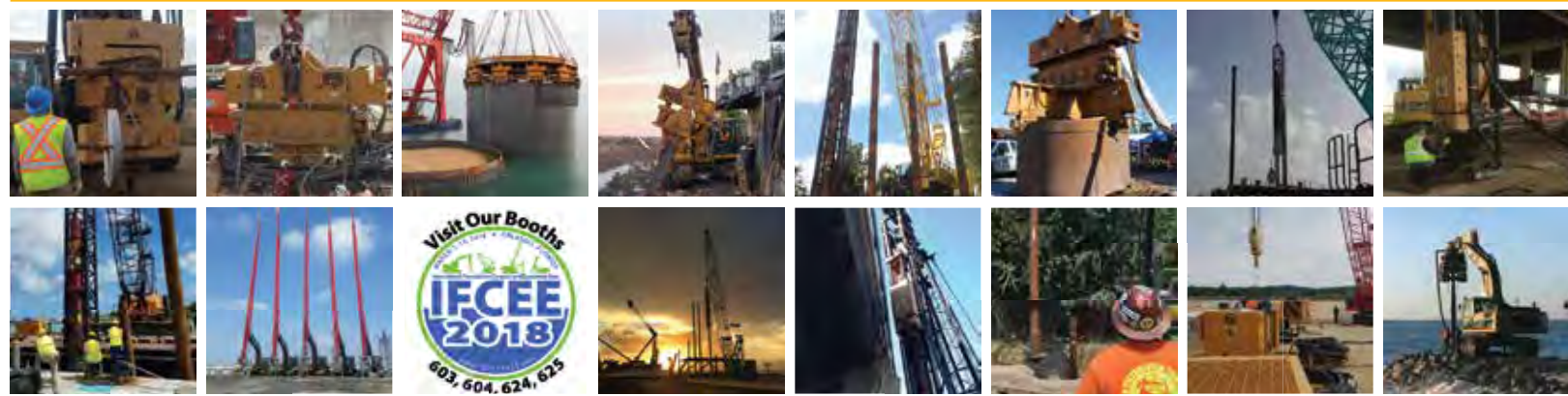
**Numerical Investigation of the Thermo-Mechanical Response of single Energy Pile**

Tahereh Razmkhah, Sharif University of Technology, Tehran, Iran; Fardin Jafarzadeh, Ph.D., Sharif University of Technology, Tehran, Iran; Omid Ghasemi-Fare, Ph.D. A.M.ASCE, University of Louisville

**SABAL G – 8:30am-10:00am**

**LIQUEFACTION AND DENSIFICATION**

*Moderator:* Menzer Pehlivan, Ph.D., P.E., CH2M



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THURSDAY, MARCH 8 (CONT)

**SABAL G – 8:30am-10:00am (Cont)**

***The Effect of Desaturation on the Static and Cyclic Mechanical Response of Dense Sand***

Sean O'Donnell, Ph.D., Geosyntec Consultants; Edward Kavazanjian, Jr., Ph.D., P.E., Arizona State University

***Liquefaction Mitigation using Driven Displacement Piles: A Case History***

Michael Allen, P.E., Coastal Engineering & Testing Company; Armin Stuedlein, Ph.D., P.E.(WA), Oregon State University

***Suitability Line of Grain Size Distribution for Blast Densification***

Scott Ashford, Oregon State University; Ben Mason, Oregon State University

***An Update to the Great Earthquake Lateral Spread Case History Database***

Bret Lingwall, Ph.D., P.E., South Dakota School of Mines and Technology; Dan Gillins, Ph.D., United States Geodetic Survey; Michael Bunn, Oregon State University

***The Comparison between Cyclic Triaxial and Cyclic Hollow Cylinder Tests for Evaluating Liquefaction Resistant of Monterey No. 0/30 Sand***

Jungang Liu, Doctoral Candidate, University of Colorado Denver

**SABAL A – 10:30am-12:00pm**

**SLOPE STABILIZATION/EARTH RETENTION - CASE HISTORIES AND LESSONS LEARNED**

*Moderator:* Timothy Stark, Ph.D., P.E., University of Illinois | Urbana-Champaign

***Developing Smart Grouted Sand Columns for Real Time Monitoring of Earth Dams***

Cumaraswamy Vipulanandan, Ph.D., P.E., M.ASCE, University of Houston; Daniel Magill, Avanti International; Ibrahim Kula, University of Houston; Frank Aguilar, Avanti International

***Effect of Microbial Induced Carbonate Precipitation on the Stability of Mine Tailings***

Atefeh Zamani, Ph.D., North Carolina State University; Qianwen Liu, North Carolina State University; Brina Montoya, Ph.D., P.E.

***Bank Stabilization Adjacent to the Missouri River Using the Dry Method of Deep Soil Mixing***

David Curran, Jr., M.S., P.E., M.ASCE, CH2M; Spring Borchardt, M.S., P.E., Hayward Baker Inc.; Mark Howe, B.S., J.D., Hayward Baker Inc.; Edwin Ayala, B.S., B.A., Hayward Baker

***The CET Method for Levee-Floodwall Erosion Evaluation***

Abdolreza Osouli, Southern Illinois University; Sina Nassiri, Southern Illinois University Edwardsville; Brent Vaughn, Southern Illinois University Edwardsville

**SABAL B – 10:30am-12:00pm**

**DESIGN AND ANALYSIS OF DEEP FOUNDATIONS III**

*Moderator:* Jim Niehoff, P.E., GEI Consultants, Inc.

***Investigations of Hybrid Mono-pile Foundations for Offshore Wind Turbines under Lateral Cyclic Loading in Sand***

Xuefei Wang, Ph.D., Case Western Reserve University; Xiangwu Zeng, Ph.D., P.E., Case Western Reserve University; Xu Yang, Case Western Reserve University; Hao Yu, Ph.D., DNV GL

***Modified LRFD Method for Drilled Shafts Using the Pressuremeter***

Elliott Drumright, Ph.D., P.E., AECOM; Thomas Barnard, P.E., AECOM

***Relaxation of Displacement Driven Pile Foundations in Florida's Granular Soils***

Rodrigo Herrera, P.E., M.E., Florida Department of Transportation; Lawrence Jones, P.E., M.S.C.E, Florida Department of Transportation; Mingu Kim, P.E., Ph.D., Terracon

***Value Engineering of Reinforcement Used in Large Diameter Drilled Shafts***

Stephen Callies, DYWIDAG Systems International USA, Inc; Lucian Bogdan, P.E., DYWIDAG Systems International, USA, Inc.; Shahid Islam, Ph.D.

***A Novel Numerical Study of Reservoir-induced Subsidence and Upheaval Effects on Bearing Capacity of Offshore Piles***

Kamelia Atefi-Monfared, Ph.D., University at Buffalo; Jakub Rybicki, M.S., University at Buffalo

***Visualizing Failure Surfaces in Soft Clay Due to Suction Caisson Loading***

Jeff Wallace, EIT, S.M.ASCE, University of Illinois at Urbana-Champaign; Cassandra Rutherford, Ph.D., P.E., M.ASCE, Iowa State University; Junxing Zheng, Ph.D., M.ASCE

**SABAL C – 10:30am-12:00pm**

**INVITED PANEL ON RISK - A RATIONAL DISCUSSION CONTINUED**

*Moderator:* Dan Brown, Ph.D., P.E., D.GE, Dan Brown and Associates, PC

This session is intended to gather engineers, contractors, equipment and material suppliers, researchers and owners together for a rational discussion about risk as related to deep foundation projects.

**Speakers:**

**Owner Perspective**

Greg Scheiss, P.E., Florida Department of Transportation

**Legal Perspective**

Rick Kalsou, Esq., Benesch, Friedlander, Coplan and Aronoff LLP

**General Contractor Perspective**

Terry Holman, Ph.D., P.E., Turner Construction Company

**Large Contractor Perspective**

Steve Saye, P.E., Kiewit Engineering Group

**Specialty Contractor Perspective**

Rick Deschamps, Ph.D., P.E., Nicholson Construction Company

**Geotechnical Engineer Perspective**

Victor Donald, P.E., Terracon

**SABAL E – 10:30am-12:00pm**

**SHALLOW FOUNDATIONS**

*Moderator:* Xiong Zhang, Ph.D., P.E., Missouri University of Science and Technology

***Measured and Predicted Dynamic Vertical Response of an Embedded Footing at TAMU NGES Site***

Patrick Dunn, Ph.D., P.E., Dennis Hiltunen, Ph.D., P.E., M.ASCE, University of Florida

***Design and Construction of High-Capacity Spread Footings over Post-Glacial Compressible Clay Deposits: Two Case Studies in Massachusetts***

Stanley Sadkowski, III, P.E., Sanborn Head and Associates, Inc.; Amy Blomeke, P.E., Sanborn, Head and Associates, Inc.; Robert House, P.E., M.ASCE, Sanborn Head and Associates, Inc.

***Reliability Analysis of Settlement for Shallow Bridge Foundations***

Aseel Ahmed, Ph.D., FYRA Engineering; Andrzej Nowak, Ph.D., Aburun University; Maria Szerszen, Ph.D., University of Nebraska-Lincoln

***Geotechnical Load Factored Resistance Design (LFRD) Calculations of Settlement and Bearing Capacity for Shallow Bridge Foundations***

Shehab Agaiby S.M.ASCE, Georgia Institute of Technology; Paul Mayne, Ph.D., Georgia Institute of Technology; Ian Rish, P.E., Georgia Department of Transportation; Adebola Adelakun, P.E., MSCE, Georgia Department of Transportation

***One-Dimensional Compressibility Behavior of Overconsolidated Bootlegger Cove Clays***

David Zapata-Medina, Ph.D., Universidad Nacional de Colombia, Sede Medellín; Diego Galeano-Parra, Universidad Nacional de Colombia, Sede Medellín; Luis Arboleda-Monsalve, Ph.D., M.ASCE, California State University at Long Beach

**SABAL F – 10:30am-12:00pm**

**QA/QC FOR DEEP FOUNDATIONS**

*Moderator:* Anna Sellountou, Ph.D., P.E., Pile Dynamics, Inc.

***State of Practice and Advances in Quality Control Methods for Drilled Shafts***

George Piscsalko, P.E., Pile Dynamics, Inc.; Pat Hannigan, P.E., GRL Engineers, Inc.

***Evaluation of Thermal Integrity Profiling (TIP) Methods – Practitioner Experiences with Probe, Embedded Wire and Wire Suspended in CSL Tubes***

David Schoen, P.E., S&ME, Inc.; Gregory Canivan, P.E., S&ME, Inc.; William Camp, III, P.E., D.GE., S&ME, Inc.

***Monitoring While Drilling Shafts in Florida Limestone***

Michael Rodgers, Ph.D., University of Florida; Michael McVay, Ph.D., University of Florida; David Horhota, Ph.D., P.E., FDOT State Materials Office

***Assessment of Bored Pile Verticality Using an Ultrasonic Caliper***

Colm O'Doherty, MSc., Jon Sinreich, M.Eng., P.E., Zeta Geotechnics LLC; Roberto Singh, M.Eng., CEMEX Panama

***Recommendations on Two Acceleration Measurements with Low Strain Dynamic Test***

Liqun Liang, Ph.D., Pile Dynamics, Inc.; Scott Webster, GRL; Marty Bixler, GRL

***Quantitative Assessment of Drilled Shafts Based-Cleanliness Using the Shaft Quantitative Inspection Device (Solid)***

Rozbeh Moghaddam, Ph.D., P.E., M.ASCE, GRL Engineers, Inc.; Patrick Hannigan, GRL Engineers, Inc.; Keith Anderson, A.H. Beck Foundation Co. Inc.

**SABAL G – 10:30am-12:00pm**

**LIQUEFACTION: ANALYSIS AND DESIGN**

*Moderator:* C. Yoga Chandran, Ph.D., P.E., G.E., CH2M

***Influence of Non-Plastic Fines on Laboratory Shear Wave Velocity Measurements and Cyclic Strength of Sands***

Lalita Oka, Ph.D., A.M.ASCE, California State University, Fresno; Mandar Dewoolkar, Ph.D., P.E., M.ASCE, University of Vermont

***Numerical Insights into Seismic Performance of Low-rise Buildings with Basements***

Jaime Mercado S.M.ASCE, California State University Long Beach; Luis Arboleda-Monsalve, Ph.D., M.ASCE., California State University Long Beach

***Effect of Overburden Pressure, Mineralogical Composition, and Plasticity on Post-Cyclic Shear Strength Degradation***

Binod Tiwari, Ph.D., P.E., California State University, Fullerton; Beena Ajmera, Ph.D., California State University, Fullerton; Brian Yamashiro, California State University, Fullerton; Quoc Phan

***Evaluation of Post-Liquefaction Shear Strength and Shear Wave Velocity of Uniform Gravels***

Jonathan Hubler, University of Michigan; Adda Athanasopoulos-Zekkos, Ph.D., University of Michigan; Dimitrios Zekkos, Ph.D., P.E., University of Michigan

***Case Histories of Liquefaction-Induced Building Damage – Focusing on the 22 February 2011 Christchurch Earthquake***

Mengfen Shen, Ph.D. Student, Clemson University; Qiushi Chen, Ph. D., A.M.ASCE, Clemson University; Jie Zhang, Tongji University; C. Hsein Juang, Clemson University

***Comparison of Measurements and Limit State Solutions for Soil Pressures on Deep Flexible Underground Structures***

Lohrasb Keykhosropour, University of CA, Irvine; Anne Lemnitzer, Ph.D., University of CA, Irvine

**CITRON EAST – 10:30am-12:00pm**

**EXCAVATION SUPPORT - DESIGN AND CONSTRUCTION**

*Moderators:* Helen Robinson, P.E., GEI Consultants, Inc. and Maysill Pascal, P.E., Menard

***Finite Element Analyses of an Urban Cofferdam Using Hypoplasticity Clay Mode***

A. Uribe-Henao, S.M.ASCE, California State University Long Beach; Luis Arboleda-Monsalve, M.ASCE, California State University Long Beach; Juan Garcia, California State University Long Beach; Lisa Star

***Analysis of Predicted Capacity Versus Load Test Results of Ground Anchors in Multi-Geology Installation***

Eric Backlund, P.E., M.ASCE, Kleinfelder; Noel Janacek, P.E., M.ASCE, Kleinfelder

***Numerical Modeling of a Tiedback Wood-Lagging Wall During Excavation***

Soheil Kamalzare, Ph.D., Condon-Johnson and Associates, Inc; David Weatherby, M.ASCE, Matthew Niermann, P.E., Dominic Parmantier, P.E., M.ASCE, Condon-Johnson and Associates Inc

***Investigation of the Effects of Different Overburden Pressures, Soil and Nail Parameters on the Pullout Shear Stress of Soil-Nail Interface Using Finite Element Simulation***

Alireza Saeedi Azizkandi, Ph.D., Assistant Professor, School of Civil Engineering, Iran University of Science and Technology; Mohamadhassan Baziar, II, Ph.D., Professor, School of Civil Engineering, Iran University of Science and Technology; Hamed Dashtara, III, MSc. Student, School of Civil Engineering, Iran University of Science and Technology; Amirhossein Kolehdozuan, IV, MSc. Student, School of Civil Engineering, Iran University of Science and Technology

**THURSDAY, MARCH 8 (CONT)**

**CITRON EAST – 10:30am-12:00pm (Cont)**

**Modeling Soil-Structure Interaction of Braced Excavations Due to Inherent Spatial Variability of Soils**

Zhe Luo, Ph.D., P.E., M.ASCE, Univ. of Akron; Yixiang Li, Univ. of Akron; Quanmei Gong, Ph.D.

**Empirical Method to Estimate Lateral Wall Deformation Profiles and Bending Moment in Excavation Retaining Walls**

Lindsey Bryson, Ph.D., P.E., M.ASCE, University of Kentucky; David Zapata-Medina, Ph.D., Universidad Nacional de Colombia; Jorge Romana-Giraldo, MS, University of Kentucky

**SABAL A – 1:00pm-2:30pm**

**ACIP PILES - CASE HISTORIES AND LESSONS LEARNED**

*Moderator:* W. Morgan NeSmith, P.E., Berkel & Company Contractors, Inc.

**Economy and Design of Augered Cast-In-Place Piles at the Fargo WTP**

Jonathan Huff, P.E., Richard Goettle, Inc.; L. Bryson, Ph.D., University of Kentucky

**Auger Cast-in-Place Piles Embedded in Cobbles and Boulders in Honolulu**

Andrew Hignite, P.E., Geolabs, Inc.; Robin Lim, P.E., Geolabs, Inc.

**Former Navy Yard Revitalized with Hollow Stem Grout-Cast-in-Place Piles**

Laurence Ford, P.E., LEED AP BD+C, M.ASCE, Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.; Tommy Maene, P.E., M.ASCE, Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.; Arthur Alzamora, Jr., P.E., LEED AP, M.ASCE, Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.; Alan Poeppel, P.E., M.ASCE, Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

**Settlement Induced During CFA Pile Installation in Egyptian Nile Valley Region: Case Study**

Mohamed Arab, Ph.D., College of Engineering, University of Sharjah; Ahmed Elgamal, Ph.D., Maher Omer, Ph.D., Waleed Zeiada, Ph.D.

**SABAL B – 1:00pm-2:30pm**

**FIELD TESTING: AXIAL/LATERAL LOAD TESTS I**

*Moderators:* Gerald Verbeek, Allnamics Pile Testing Experts BV and Cassandra Rutherford, Ph.D., P.E., Iowa State University

**Examining Auger Cast-In-Place Piles in Difficult Ground Conditions**

Nicholas Kam, P.E., Geolabs, Inc.; Jason Seidman, P.E., Geolabs, Inc.; Robin Lim, P.E., Geolabs, Inc.

**Model Tests on Piled Rafts – Measured Settlement Compared with Predictions From Finite Element and Empirical Methods**

Joshua Omer, BSc (Hons), MSc, Ph.D., GMICE, MDFI, Kingston University

**Extrapolation Error Analysis of O-Cell Load-Settlement Curves for LRFD Calibration of Drilled Shafts**

Mohammad Rakib Hasan, University of Texas at Arlington; Xinbao Yu, Ph.D., M.ASCE, University of Texas at Arlington; Murad Abu-Farsakh,

**An Updated Database for the Spring Villa National Geotechnical Experimentation Site**

Jack Montgomery, Ph.D., A.M.ASCE, Auburn University; Chao Shi, S.M.ASCE, Auburn University; J. Anderson, Ph.D., P.E., M.ASCE, Auburn University

**Full Scale Testing of Laterally Loaded Helical Pile Groups**

Mohammed Sakr, Ph.D., P.Eng, Sakr Geotechnical Consulting Ltd

**Weak Axis Lateral Load Testing of a Four H Pile Bent**

J. Anderson, Ph.D., P.E., Auburn University; Justin Marshall, Ph.D., P.E., Auburn University; Jonathon Campbell, Uzun and Case; Zachary Skinner, Brasfield and Gorrie

**SABAL C – 1:00pm-2:30pm**

**THE NUTS AND BOLTS OF BUILDING A BETTER JOB**

*Moderator:* Peggy Hagerty Duffy, P.E., D.GE., ADSC and Hagerty Engineering

This session will cover three topics that are current in 2018: construction in heavy urban areas with restricted access; management of airborne silica dust and protection of worker safety; and execution of post-grouting for drilled shafts. Each presenter will provide information about his respective topic with added insights into how construction in each situation could be improved with some specific design considerations on future projects.

**Wynn Casino, Everett/Boston, MA**

Tony Barila, Hub Foundation Co.

**Effective Implementation of Post-Grouting for Drilled Shafts**

Dr. Erik Loehr, University of Missouri at Columbia

**Dealing with Respirable Crystalline Silica Monitoring**

Blake Holton, Moretrench. Inc.

**SABAL E – 1:00pm-2:30pm**

**PILE DRIVING - DESIGN AND CONSTRUCTION**

*Moderators:* Michael Wysocky, Ph.D., P.E., Thatcher Engineering Corporation, and William Walton, P.E., S.E., F.ASCE

**Lateral Soil Movements Due to Pile Driving: A Case Study in Soft Clays**

Antonios Vytiniotis, Ph.D., P.E., Exponent; Brendan Casey, Ph.D., P.E., Exponent; David Sykora, Ph.D., P.E., D.GE., Exponent

**Full-Scale Lateral Load Tests of Driven Piles in Bangkok Clay**

Gong Chaosittichai, M.D., Mahidol University; Pongpipat Anantanakul, Ph.D., Mahidol University

**Development of a; Screening Tool for Impact Hammer Selection for Installation, Testing and Damage Mitigation of Steel Pipe and H-Piles**

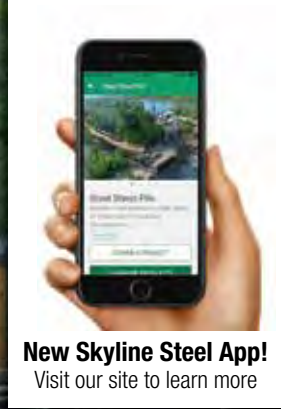
Gerald Verbeek, MSc, M.ASCE, Allnamics USA; David Tara, M.Sc.A., P.Eng., Thurber Engineering Ltd.

**Comparison of Axial Resistance of Driven Piles Determined using Automatic Signal Matching Software, iCAP and CAPWAP**

Eric Steward, Ph.D., P.E., University of South Alabama; Frank Rausche, Ph.D., P.E., D.GE., Pile Dynamics, Inc.; Ronald Jones, Building Engineering Consultants, Inc.

**A Multistage Signal Matching Approach for Pile Capacity Estimation Using the Instrumented Becker Penetration Test**

Kevin Kuel, Jason DeJong, Ph.D., University of California; Mason Ghafghazi, Ph.D., University of Toronto



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**THURSDAY, MARCH 8 (CONT)**

**SABAL E – 1:00pm-2:30pm (Cont)**

**Energy Transfer and Facators of Safety with and without High Strain Dynamic Testing**

Steven Halcomb, P.E., G.E., M.ASCE, PND Engineers, Inc.; Kenton Braun, P.E., M.ASCE, PND Engineers, Inc.

**SABAL F – 1:00pm-2:30pm**

**BRIDGES: FOUNDATION DESIGN AND CONSTRUCTION**

*Moderator:* Sam Sternberg, III, P.E., Thompson Engineering

**A Preliminary Design of Apparatus for Scour Resistance Test in Riverbed Sediments**

Fayun Liang, Tongji University; Xiong (Bill) Yu, Case Western Reserve University

**Experimental Investigation of Granular Bulk Density Effect on Bridge Local Scour**

Junhong Li, University of Akron; Junliang Tao, Ph.D., A.M.ASCE, University of Akron

**Case History: Shallow Foundation for the Gut Movable Bridge**

Raymond Mankbadi, MSCE, Hardesty & Hanover, LLC; Jeffrey Bade, MSCE, Hardesty & Hanover, LLC; Aravinda Ramakrishna, MSCE, Hardesty & Hanover, LLC

**Numerical Feasibility Study of an Externally Heated Geothermal Bridge Deck**

Teng Li, University of Texas at Arlington; Lei Gang, inbao Yu, Ph.D., P.E., M.ASCE, University of Texas at Arlington; Nan Zhang, Ph.D., Findling, Inc.; Anand Puppala, Ph.D., P.E., F.ASCE, University of Texas at Arlington

**SABAL G – 1:00pm-2:30pm**

**GROUND IMPROVEMENT DESIGN AND QA/QC CONSIDERATIONS: PANEL DISCUSSION**

*Moderator:* Jose Clemente, Ph.D., P.E., D.GE., F.ASCE, Bechtel NS&E

This session will address the use of performance vs. prescriptive specifications and QA/QC programs and appropriate verification testing for ground improvement solutions.

Juan Baez, Ph.D., P.E., P.Eng., Advanced Geosolutions Inc (AGI)

Giovanni Bonita, Ph.D., P.E., P.G., GEI Consultants, Inc.

George Filz, Ph.D., P.E., Virginia Polytechnic Institute and State University

Roberto Lopez, P.E., Malcolm Drilling Company, Inc.

Al Sehn, Ph.D., P.E., Keller/Hayward Baker, Inc.

Kord Wissmann, Ph.D., P.E., D.GE., GeoPier Foundation Company, Inc.

**CITRON EAST – 1:00pm-2:30pm**

**TUNNELS AND BURIED STRUCTURES**

*Moderators:* Eric Wang, P.E., HNTB Corporation and Thomas Pennington, P.E., McMillen Jacobs Associates

**Design Methodology to Evaluate Hydraulic Jacking in Pressure Tunnels**

Mohammad Moridzadeh, Ph.D. Candidate, Lead Geotechnical Engineer, S.M.ASCE,

Montgomery Watson Harza (MWH); Peter Dickson, Ph.D., P.E., Montgomery Watson Harza (MWH)

**Tunnel Foundation Remediation in an Area of Mild Squeezing Conditions**

Chrysanthos Steiakakis, P.E. A.M.ASCE, Geosysta Ltd; Stamatini Delmadorou, Geosysta Ltd; Lefteris Malandrakis, P.E., TERNA S.A.; Zacharias Agioutantis, Ph.D., University of Kentucky; Alexandros Athanasiou, iC consulenten ZT GmbH

**Compensation Grouting Program to Mitigate Settlement of Utilities from Tunneling**

James Myers, P.E., Moretrench; Jonathan Taylor, P.E., Parsons; Lucian Spiteri, P.E., Moretrench

**Assessment of Dynamic Load Allowance for Buried Culverts**

Kalehiwot Manahiloh, Ph.D., P.E., M.ASCE, University of Delaware; Mehdi Kadivar, University of Delaware; Harry Shenton, Ph.D., M.ASCE, University of Delaware; Victor Kaliakin, Ph.D., M.ASCE, University of Delaware

**SABAL A – 3:00pm-4:30pm**

**DRILLED SHAFTS - CASE HISTORIES AND LESSONS LEARNED**

*Moderator:* Bubba Knight, P.E., Loadtest, A Division of Fugro USA Land, Inc.

**Remediation of Anomalous Drilled Shafts – A Case Study**

Brannin Beeks, P.E., Kiewit-Weeks\_Massman, AJV; Bobby Daita, P.E., Parsons Transportation Group; John Turner, Ph.D., P.E., D.GE, Dan Brown and Associates, PC

**Drilled Shaft Design as it Relates to Risk and Money**

Lance Kitchens, P.E., Russo Corporation

**Drilled Shaft Foundation Design for Sarah Mildred Long Bridge Replacement Project**

Aravinda Ramakrishna, MSCE, Hardesty & Hanover, LLC; Raymond Mankbadi, MSCE, Hardesty & Hanover, LLC

**Innovative Approach to Repairs of Deep Anomalies in Drilled Shafts to Restore Their Structural Integrity**

Alexandre Bredikhin, MSCE, P.E., USACE

**Obstructed and Damaged Piles – Some Case Histories of Pile Repairs**

Ali Azizian, Ph.D., P.Eng., PMP, Tetra Tech

**Drilled Shaft Installation at an Abandoned Underground Mine Site**

Michael Arnold, BAUER Foundation Corp.; Bob Faulhaber, P.E., M.ASCE, BAUER Foundation Corp.; Joe Nichols, P.E., BAUER Foundation Corp.; Russell Cooper, BAUER Foundation Corp.

**SABAL B – 3:00pm-4:30pm**

**FIELD TESTING: AXIAL/LATERAL LOAD TESTS II**

*Moderators:* John Turner, Ph.D., P.E., D.GE, Dan Brown and Associates, PC and Murad Abu-Farsakh, Ph.D., P.E., Louisiana State University

**Prediction and Measurement of Unit Side Resistance in Franciscan Complex Bedrock – The Longest Drilled Shafts in San Francisco**

Justin Ray, P.E., Langan Engineering & Environmental Services; Scott Walker, P.E., G.E., Langan Engineering & Environmental Services; Lori Simpson, P.E., G.E., Langan Engineering & Environmental Services



**Dynamic Pile Load Testing Experiences in Costa Rica. Three Case Studies: Moin Oil Terminal, Caldera Grain Pier, and Chucas Hydroelectric Project Bridge**

Luis Vargas, MSc., MyV Soluciones Geotecnicas; Mauricio Coto, ic., MyV Soluciones Geoténicas; Luis Millan, ic., PDCA Dynamic Testing Proficiency Test-advanced, Millan Ingenieria

**Effects of Temporary Casing on the Side Shear of Small Scale Rock Sockets in Limestone**

Lucas Calliari de Lima, Doctoral Candidate, University of South Florida; Daniel Hagerman EI, University of South Florida; Gray Mullins, Ph.D., P.E., University of South Florida

**Axial Pile Stress Distribution and Capacity Behavior of a 30-inch Diameter Concrete Filled Pipe Pile Element During Driving, Static Load Testing, and In Service**

Derrick Dasenbrock, P.E., FASCE, Minnesota Department of Transportation; Paul Axtell, P.E., D.GE, Dan Brown and Associates; Aaron Budge, Ph.D., P.E., Minnesota State University, Mankato

**Static and Dynamic Pile Load Tests on Closed-Ended Driven Pipe Pile in Indiana, U.S.**

Fei Han, Purdue University; Monica Prezzi, Ph.D., Purdue University; Rodrigo Salgado, Ph.D., P.E., D.GE., F. ASCE, Purdue University

**SABAL C – 3:00pm-4:30pm**

**INVITED PANEL ON DIGGS AND DATA USE IN THE GEOPROFESSION**

*Moderator:* Allen Cadden, P.E., D.GE, Schnabel Engineering, Inc.

This panel of invited speakers will briefly present the state of our practice in data collection, transmission and interpretation in the geoprofession beginning with an update on DIGGS, a look at load testing data, foundation drilling equipment, and grouting to set the background for how data will change our profession.

Scott Deaton, Ph.D., Data Forensics (DIGGS: working example of data transfer)

Nick Machairas, NYU (Load Test data scheme)

Gordian Ulrich, Equipment Corporation of America (Data in modern drill rigs)

Gabriele Eccher, SWS Global (Grouting data management Mosul dam)

**SABAL E – 3:00pm-4:30pm**

**SELECTED OTHER TOPICS IN GEOTECHNICAL ENGINEERING II**

*Moderators:* Matteo Montesi, P.E., WSP USA and Curt Basnett, P.E., G.E., CH2M

**Modeling of the Burrowing Mechanism by Razor Clam: Effects of Shell Expansion**

Sichuan Huang, University of Akron; Junliang Tao, University of Akron

**Characterization of As-constructed Aggregate Base Layer Stiffness Using Embedded Shear Wave Transducers**

Yong-Hoon Byun, Ph.D., University of Illinois at Urbana-Champaign; Erol Tutumluer, Ph.D., University of Illinois at Urbana-Champaign

**Large Diameter Pressure Sensors: Design, Development and Sample Application**

Anne Lemnitzer, Ph.D., University of CA, Irvine; Lohrasb Keykhosropour, S.M.ASCE, University of California, Irvine; Antonio Marinucci, Ph.D., MBA, P.E., M.ASCE, V2C Strategists, LLC; Steve Keowen, Self Employed

**Global Segmentation Algorithm for Partially Saturated Granular Geomaterials**

Kalehiwot Manahiloh, Ph.D., P.E., M.ASCE, University of Delaware; Kokeb Abera, University of Delaware; Mohammad Motaleb Nejad, S.M.ASCE, University of Delaware

**SABAL F – 3:00pm-4:30pm**

**PAVEMENTS AND SUBGRADES I**

*Moderators:* Boo Hyun Nam, Ph.D., University of Central Florida and S. Sonny Kim, Ph.D., P.E., F.ASCE, Associate Professor, University of Georgia

**Monitoring of Moisture Variation in Highway Slope through Resistivity Imaging**

Asif Ahmed, University of Texas at Arlington; MD Sahadat Hossain, Ph.D., P.E., University of Texas at Arlington; Mohammad Sadik Khan, Ph.D., P.E., Jackson State University

**Performance of Lime Kiln Dust-Treated Subgrade Soils**

Jamal Kakrasul, Ph.D. Candidate, the University of Kansas; Robert Parsons, Ph.D., P.E., the University of Kansas; Jie Han, Ph.D., P.E., F.ASCE, Glenn L. Parker Professor of Geotechnical Engineering, the University of Kansas

**Stabilization of Highly Expansive Moreland Clay using Class-C Fly Ash Geopolymer (CFAG)**

Debojit Sarker, Md Adnan Khan, Ph.D., EIT, M.ASCE, Louisiana Tech University; Jay Wang, Ph.D., P.E., M.ASCE, Louisiana Tech University

**Mitigation of Subgrade Moisture in North Texas by Using Modified Moisture Barrier**

Asif Ahmed, University of Texas at Arlington; MD Sahadat Hossain, Ph.D., P.E., University of Texas at Arlington; Kelli Greenwood, BS, EIT, Mohammad Sadik Khan, Ph.D., P.E., Jackson State University

**The Use of Lime Sludge with Other Calcium-Based Stabilizer in Soil Stabilization**

Haluk Sinan Coban, Iowa State University; Bora Cetin, Ph.D., Iowa State University

**Magnitude and Rate of Migration of Fine Subgrade Soil into Granular Subbase under Scaled Flexible Interstate Pavement**

Behnoud Kermani, Ph.D. Candidate, GSI Fellow, The Pennsylvania State University; Ming Xiao, Ph.D., The Pennsylvania State University; Shelley Stoffels, D.E., The Pennsylvania State University; Tong Qiu, Ph.D., The Pennsylvania State University

**SABAL G – 3:00pm-4:30pm**

**GROUND IMPROVEMENT/TREATMENT CASE STUDIES**

*Moderator:* Chris Woods, P.E., G.E., D.GE., Densification, Inc.

**Staged Embankment Construction in Soft Clay and Slope Failure Impacted by Wick Drain Kinking: Case Study**

John Lee, Master of Science, P.E., G.E., M.ASCE, CH2M; Curt Basnett, Master of Science, P.E., G.E., MASCE, CH2M; Saffraz Muhammad, R. Eng, CH2M

**Design Methodology for PVD Installation in Embankments over Soft Soils**

Ranjiv Gupta, Ph.D., P.E., Geosyntec Consultants; Lucas deMelo, Ph.D., P.E., Geosyntec Consultants

THURSDAY, MARCH 8 (CONT)

SABAL G – 3:00pm-4:30pm (Cont)

**Evaluation of Tests in Prediction of Final Solid Content in Geotextile Tube Dewatering Projects: A Case Study**

Zeru Kiffle, Ph.D. Candidate, Syracuse University; Shobha Bhatia, Ph.D., Syracuse University; Gregg Lebster, WaterSolve; Ratna RatnaYesraj, MSC

CITRON EAST – 3:00pm-4:30pm

BIO-BASED SOIL IMPROVEMENT II

*Moderators:* Dimitrios Zekkos, Ph.D., University of Michigan and Jason Dejong, Ph.D., University of California, Davis, and Kenichi Soga, Ph.D., University of California, Berkeley

**Modeling Bio-Cemented Sands: A Strength Index for Cemented Sands**

Chukwuebuka Nweke, E.I.T, University of California, Berkeley; Juan Pestana, Sc.D., P.E., University of California, Berkeley

**A New Framework for Identifying Cementation Level of MICP-Treated Sands**

Ashkan Nafisi, S.M.ASCE, North Carolina State University; Brina Montoya, P.E., M.ASCE, North Carolina State Univ.

**Sisal Fiber Reinforcement of EICP-Treated Soil**

Abdullah Almajed, Ph.D., Arizona State University; Hamed Khodadadi T, Ph.D., Aff.M.ASCE, Arizona State University; Edward Kavazanjian, Jr., Ph.D., F.ASCEs, Arizona State University

**Develop a Multiple Treatment Laboratory Method to Enhance Microbial-Induced Soil Stabilization**

Kejun Wen, Jackson State University; Lin Li, Ph.D., P.E., F. ASCE, Jackson State University; Yang Li, Jackson State University; Farshad Amini, Ph.D., P.E., F.ASCE, Jackson State University

**Effects of Bacteria on the Engineering Behaviors of Soils**

Yuan Guo, Case Western Reserve University; Mark Loria, Case Western Reserve University; Kurt Rhoads, Case Western Reserve University; Xiong Yu, Ph.D., P.E., F.ASCE, Case Western Reserve University

**Response Characteristics of Engineered Equestrian Surfaces: A Case Study**

William Hawe, Jean Benoit, Ph.D., yan van der Heijden, BSCE, University of New Hampshire

FRIDAY, MARCH 9

SABAL A – 8:00am-9:30am

GROUND IMPROVEMENT - CASE HISTORIES AND LESSONS LEARNED

*Moderator:* Jose Clemente, Ph.D., P.E., D.GE., F.ASCE, Bechtel NS&E

**Rigid Inclusion Supported Embankments for New Jersey Turnpike Interchange 14A Improvements: A Case Study**

Daniel Cacciola, P.E.,aisal Ahmed, Ph.D., P.E., PMP, Shafiq Siddiqui, Ph.D., P.E., Gannett Fleming, Inc.; Sarah Ramp, Menard USA

**Rigid Inclusion System Supports Multi-Story Residential and Parking Garage Structures in Organic Soil Profile**

Steven Kraemer, P.E., Haley & Aldrich, Inc.; Robert Condon, P.E., Geopier Foundation Company; Kord Wissmann, Ph.D., P.E., D.GE, Geopier Foundation Company

**Deep Power Compaction Vibro-Compaction Testing Program at Treasure Island**

Stefanos Papadopoulos, P.E. G.E., ENGEO Incorporated; Uri Eliahu, PE, G.E, ENGEO Incorporated

**Half Mile Long Ore Shed: Ground Improvement in “Low Headroom”**

Allen Cadden, P.E. D.GE., F.ASCE, Schnabel Engineering; Michael Arnold, Ph.D., ob Faulhaber, P.E., Johanna Simon, P.E.,

**Jet Grouting for Seepage Control at Lac des Iles Water Management Facility**

Naresh Gursaud, P.Eng., Geo-Foundations Contractors; Daniel Lees, P.Eng., Geo-Foundations Contractors; Frank Hu, P.Eng., Geo-Foundations Contractors

SABAL B – 8:00am-9:30am

DEEP FOUNDATIONS & SEISMIC ISSUES

*Moderator:* Billy Camp, P.E., D.GE, S&ME

**Lateral Resistance of Piles within Corrugated Metal Sleeves**

Kyle Rollins, Ph.D., Brigham Young University; Dalin Russell, EIT, GeoEngineers, Inc.

**Analysis of Post-Liquefaction Axial Capacities of Driven Pile and Drilled Shaft Foundations**

Elvis Ishimwe, University of Arkansas; Coffman Richard, University of Arkansas; Kyle Rollins, Ph.D., Brigham Young University

**Densification of Granular Soils by Pile Driving and Implications for Evaluation of Liquefaction**

Frederick Rhyner, P.E., Mueser Rutledge Consulting Engineers

**Lateral Behaviour of Pile Foundations during Partial Liquefaction**

Pradeep Kumar Dammala, AM.ASCE, University of Surrey; Mehdi Rouholamin, Ph.D., University of Portsmouth; Georgios Nikitas, University of Surrey; Subhamoy Bhattacharya, Ph.D., University of Surrey; Murali Krishna Adapa, Ph.D., M.ASCE, Indian Institute of Technology Guwahati

SABAL C – 8:00am-9:30am

DRIVEN PILES: A SOLUTION FOR DIFFICULT SOIL AND SITE CONDITIONS

*Moderator:* Gerry McShane, MICE, Service Steel Warehouse

This session will explore how the driven pile can be an effective solution in a variety of problematic subsurface conditions.

Mohamad Hussein, P.E., GRL Engineers

Dave Chapman, P.E., Blakeslee Arpaia Chapman Inc

Gerry McShane, Service Steel Warehouse

SABAL E – 8:00am-9:30am

UNSATURATED SOILS

*Moderators:* Farshid Vahedifard, Ph.D., P.E., Mississippi State University and Rifat Bulut, Ph.D., Oklahoma State University

## **Effects of Temperature on Microstructural Properties of Unsaturated Clay**

C. Clay Goodman, S.M.ASCE, Mississippi State University; Nima Latifi, M.ASCE, Mississippi State University; Farshid Vahedifard, M.ASCE, Mississippi State University

## **A Simplified Approach to Determine the Response of Unsaturated Soils Using Multistage Triaxial Test**

Aritra Banerjee, Ph.D., AM.ASCE, University of Texas at Arlington; Anand Puppala, Ph.D., P.E., F.ASCE, D.G.E., University of Texas at Arlington; Ujwalkumar Patil, Ph.D., P.E., M.ASCE, University of Texas at Arlington; Laureano Hoyos, Ph.D., P.E., M.ASCE, University of Texas at Arlington; Puneet Bhaskar, M.S., SM.ASCE,

## **Thermal Conductivity of Unsaturated Sands at Moderately Elevated Temperatures (25 to 75 °C)**

Jun Yao, Ph.D. candidate, University of Wisconsin, Madison; William Likos, University of Wisconsin, Madison

## **Geotechnical Engineering in the Face of Climate Change: Role of Multi-Physics Processes in Partially Saturated Soils**

Farshid Vahedifard, Ph.D., P.E., M.ASCE, Mississippi State University; James Williams, Mississippi State University; Amir AghaKouchak, Ph.D., P.E., M.ASCE

### SABAL F – 8:00am-9:30am

#### SITE CHARACTERIZATION

*Moderator:* Xiong (Bill) Yu, Ph.D., P.E., F.ASCE, Case Western University

## **A Comparison of In-Place Unit Weight and Moisture Content Measurements Made Using Nuclear Based Methods and the Drive Cylinder Method**

William Baker, III, E.I.T., S.M.ASCE, University of Delaware; Christopher Meehan, Ph.D., P.E., University of Delaware

## **Comparison of Direct Push to Pre-Bored Pressuremeter Test Results**

Karl Higgins, III, P.E., D.GE, ECS Ltd.; John Garber, E.I.T., ECS Ltd.; Nick Meloy, P.E., ECS Ltd.

## **A Preliminary Study on Use of Lidar Data to Characterize Sinkholes in Central Florida**

Amirarsalan Rajabi, University of Central Florida; YongJe Kim, University of Central Florida; Sung-Hee Kim, Ph.D., ongSeong Kim, Ph.D., umJoo Kim, Ph.D., oo Hyun Nam, Ph.D., University of Central Florida

## **Equations to Calculate the Undrained Shear Strength of Lacustrine Soil Deposit with Swedish Cone Equipment**

Binod Tiwari, Ph.D., P.E., California State University, Fullerton; Daniel Pradel, Ph.D., P.E., D.GE, The Ohio State University; Beena Ajmera, Ph.D.

## **A Decision Tree Based Hazard Assessment of Karst Sinkholes**

YongJe Kim, University of Central Florida; Boo Hyun Nam, Ph.D., University of Central Florida; Changsu Lim, Ph.D., yuk-Sang Jung, Ph.D., Joon-Shik Moon

## **Strength and Index Measurements of South Florida Carbonate-Rocks**

Thai Nguyen, P.E., University of Florida; Michael McVay, Ph.D., University of Florida; Xiaoyu Song, Ph.D., University of Florida; Scott Wasman, Ph.D., University of Florida; Michael Rodgers, Ph.D., University of Florida; David Horhota, Ph.D., P.E., FDOT

### SABAL G – 8:00am-9:30am

#### STONE COLUMNS/PIERS/GROUTING II

*Moderators:* Kord Wissman, Ph.D., P.E., D.GE, Geopier Foundation Company and Jie Han, Ph.D., P.E., University of Kansas

## **Development and Field Verification of a New Compaction Grouting Method with Improved Upheaval Control**

Kanji Takenouchi, Sanshin Corporation; Shinji Sassa, Ph.D., Port and Airport Research Institute; Hiroyuki Yamazaki, Ph.D., Port and Airport Research Institute; Takeshi Konishi, Mirai Construction Co., LTD; Takashi Shinsaka, Sanshin Corporation; Yuichi Kanno, Fukken.Co., Ltd

## **A Study of A Single Stone Column in Soft Clay Using Discrete Element Method (DEM)**

ANIBAL SANTOS, Ph.D. Student, University of Arkansas; MICHELLE BERNHARDT, Ph.D., University of Arkansas

## **Compaction Grouting for Ground Improvement and Lifting of Foundations on Variable and Voided Fine Grained Organic Fill**

Michael Remboldt, KA Engineers; Joe Harris, Hayward Baker; Joe Amend, Hayward Baker; Jesse Friel, Hayward Baker

## **Remedial Grouting of Existing Embankment Dam Foundations: Lessons Learned (and Ignored)**

Donald Bruce, Ph.D., D.GE, C.Eng., P.G. L.G., L.E.G., Geosystems, L.P.; Trent Dreese, Gannett Fleming; Jim Cockburn, Consultant

## **Effect of Columnar Sand Inclusions on the Cyclic Resistance of Anisotropically-Consolidated Clay**

Ahmad Kahiel, American University of Beirut; Salah Sadek, M.ASCE, American University of Beirut; Shadi Najjar, A.M.ASCE, American University of Beirut

## **A Case History of a Jet Grouted Wall in Saturated Course Granular Material with Boulders**

Paolo Gazzarrini, P.Eng. M.ASCE, Sea To Sky Geotech Inc; Calum Buchan, P.Eng., WSP Canada Inc; Stephen Jungaro, Matcon Excavation and Shoring; Dan Hunt, Matcon Excavation and Shoring; Rob Mawe

### CITRON EAST – 8:00am-9:30am

#### SEISMIC ASPECTS OF EARTH RETENTION

*Moderator:* Ali Eliadorani, Ph.D., P.E., PLS, South Carolina State University

## **Fragility Analysis of Seismic Response of Cantilever Retaining Walls with Cohesive and Cohesionless Backfill Materials**

Siavash Zamiran, Southern Illinois University; Abdolreza Osouli, Southern Illinois University Edwardsville

## **Seismic-induced Transverse Deformation of a Geosynthetic Reinforced Soil Bridge Abutment Subjected to Longitudinal Shaking**

Wenyong Rong, M.S. S.M.ASCE, University of California San Diego; Yewei Zheng, M.S., S.M.ASCE, University of California San Diego; John McCartney, Ph.D., P.E., M.ASCE, University of California San Diego; Patrick Fox, Ph.D., P.E., F.ASCE, Pennsylvania State University

## **Experimental and Numerical Investigation of Lateral Earth Pressures Generated from Repeated Loading**

Jorge Zornberg, Ph.D., P.E., F.ASCE, The University of Texas at Austin; Amr Morsy S.M.ASCE, The University of Texas at Austin; Jakob Walter, S.M.ASCE, The University of Texas at Austin

FRIDAY, MARCH 9 (CONT)

CITRON EAST – 8:00am-9:30am (Cont)

**Cyclically Induced Deformations in Lightweight Cellular Concrete Backfilled Retaining Structures**

Binod Tiwari, Ph.D., P.E., California State University, Fullerton; Beena Ajmera, California State University, Fullerton; Diego Villegas, Cell-Crete Corporation

SABAL A – 10:00am-11:30am

**EXCAVATION SUPPORT - CASE HISTORIES AND LESSONS LEARNED**

*Moderators:* Rick Valentine, P.E., Valentine Engineering Consultants and Walter Kutschke, P.E., AECOM

**Cutter Soil Mixed Support of Excavation Walls and Deep Foundations for Remodeling of a Hotel Structure**

Justin Simmons, P.E., BAUER Foundation Corp.; Michael Arnold, BAUER Foundation Corp.; Bob Faulhaber, P.E., M.ASCE, BAUER Foundation Corp.

**Galata Port Project in Istanbul: Rehabilitation and Restoration works of the Terminal for Cruise Ship and Historical Surrounding Area**

Marco Chiarabelli, P.E., MBA, Soilmec North America; Federico Pagliacci, P.E., Soilmec S.p.A.; Claudio Asioli, P.E., Trevi S.p.A.; Salvatore Miranda

**Using Three Systems for Soil and Bedrock Stabilization**

Laurence Ford, P.E., LEED AP BD+C, M.ASCE, Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.; Andrew Ciancia, P.E., LEED AP, L.ASCE, Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.; Arthur Alzamora, Jr., P.E., LEED AP, M.ASCE, Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

**Combining Secant Piles with a Grouting Program Provides a Value Engineered Alternative for a Critical Support of Excavation**

David Sposito, P.E., Posillico Civil, Inc.; Andrew Burns, P.E., Posillico; Sitotay Fantaye, P.E., Mueser Rutledge Consulting Engineers; James Myers, P.E., Moretrench

SABAL B – 10:00am-11:30am

**PAVEMENTS AND SUBGRADES II**

*Moderators:* Boo Hyun Nam, Ph.D., University of Central Florida and S. Sonny Kim, Ph.D., P.E., F.ASCE, Associate Professor, University of Georgia

**Monitoring of Moisture Fluctuations in a Roadway over Expansive Clay Subgrade**

Christian Armstrong, M.S., University of Texas at Austin; Jorge Zornberg, Ph.D., P.E., University of Texas at Austin

**Compressibility of Fine Coal Refuse**

Cyrus Jedari, University of Tennessee; Angelica Palomino, Ph.D., University of Tennessee; Eric Drumm, Ph.D., P.E., University of Tennessee

**A Case study and Lessons Learned "Loop 1604 Western Extension Subgrade and Pavement Testing and Evaluation"**

Hosam Salman, P.E., F.ASCE, WSP; William Martinez, P.E., WSP; Ravi Vedantham,

P.E., Foundation Constructors, Inc.; Anand Puppala, Ph.D., P.E., Fellow-ASCE, Diplomate in GE, The University of Texas at Arlington

**Instrumentation and Monitoring of Distress Remediation Strategies Alabama Highway 5**

Dan Jackson, Auburn University; Dylan Jones, Auburn University; J. Anderson, Ph.D., P.E., Auburn University

**Utilisation of Building Derived Material for improving performance of Sand as a Foundation Material**

Jayatheja Mukhtinalapati, M.Tech., Birla Institute of Technology and Science, Pilani, Hyderabad; Ashok Suluguru, M.Tech., Birla Institute of Technology and Science, Pilani, Hyderabad Campus; Anasua GuhaRay, Ph.D., A.M.ASCE, Birla Institute of Technology and Science, Pilani, Hyderabad Campus; Arkamitra Kar, Ph.D., EIT, A.M.ASCE, Birla Institute of Technology and Science, Pilani, Hyderabad Campus

SABAL C – 10:00am-11:30am

**HISTORY AND FUTURE OF INDUSTRY-ACADEMIC PARTNERSHIPS**

*Moderators:* Trish Gallagher, Ph.D., Drexel University and Helen Robinson, P.E., GEI Consultants, Inc.

This session will include a combination of brief presentations and networking activities to foster relationships between industry and academic partners that further practical research efforts.

**Speakers:**

Shobha Bhatia, Ph.D.: *Geotechnical Women Faculty from 1989-2017: A U.S. Case Study*

Debra Laefer, Ph.D., P.E.: *America's Research-Active, Geotechnical Faculty Members: A Snapshot of the Community 7 Years On*

Mary Ellen Large, P.E., D.GE (DFI), Peggy Hagerty Duffy, P.E., D.GE (ADSC), and Jennifer Nicks, Ph.D., P.E (FHWA): *Industry and Government Research Funding Opportunities*

SABAL E – 10:00am-11:30am

**CONSTITUTIVE MODELING I**

*Moderators:* Usama El Shamy, Ph.D., P.E., Southern Methodist University | Lyle and San Seung Jae Lee, Ph.D., Florida International University

**Yield Surface Mapping and Triaxial Compression Test Data Curation**

Mohammad Eslami, Ph.D. Candidate, University of California, Los Angeles; Scott Brandenburg, Ph.D., P.E, University of California, Los Angeles; Daniel Pradel, Ph.D., P.E, G.E, Ohio State University; Maria Esteva, Ph.D., Texas Advanced Computing Center

**Simulation of Quasi-Static Collapse of Granular Columns using Smoothed Particle Hydrodynamics Method**

Elnaz Kermani, S.M.ASCE, Pennsylvania State University; Tong Qiu, Ph.D., P.E., M.ASCE, Pennsylvania State University

**Effect of Normalization on Developing SHANSEP Based Undrained Shear Strengths of Fine-Grained Soils**

Binod Tiwari, Ph.D., P.E., California State University, Fullerton; Beena Ajmera, Ph.D., California State University, Fullerton; Mohammed Al Behadili, California State University, Fullerton

**Use of Nano-Level Constitutive Model to Predict the Volume Change Behavior of the Treated Expansive Clays**

Sahel Abduljawwad, Ph.D., abib-ur-Rehman Ahmed, Ph.D.,

**Prediction of Particle Size Distribution in Clay Using Electrical Conductivity Measurements**

Lindsey Bryson, Ph.D., P.E. M.ASCE, University of Kentucky; Majid Mahmoodabadi, S.ASCE, University of Kentucky

**H-Pile Driving Induced Vibrations: Reduced-Scale Laboratory Testing and Numerical Analysis**

Athina Grizi, A.M.ASCE, University of Michigan; Adda Athanasopoulos-Zekkos, A.M.ASCE, University of Michigan; Richard Woods, Dist.M.ASCE, University of Michigan

## SABAL F – 10:00am-11:30am

### ROCK MECHANICS

*Moderators:* Ingrid Tomac, Ph.D., University of California San Diego and Ehsan Ghazanfari, Ph.D., P.E., University of Vermont

**Response of Marcellus Shale Specimens to Cyclic Loading**

Arash Kamali Asl, University of Vermont; Ehsan Ghazanfari, University of Vermont

**New Vipulanandan Failure Model and Property Correlations for Sandstone, Shale and Limestone Rocks**

Cumaraswamy Vipulanandan, Ph.D., P.E., M.ASCE, University of Houston; Ahmed Mohammed, Ph.D., University of Houston

**Thermal Conductivity Measurements on Weathered Limestone**

John Nuszkowski, Ph.D., University of North Florida; Nick Hudyma, Ph.D., University of North Florida; Marcus Polito,

**The Study on Island Rock-mass Mechanical Parameters in a Cross-sea Bridge**

Jianli WU, Ph.D., Southwest Jiaotong University; Xiewen HU, Southwest Jiaotong University; Dage SONG

## SABAL G – 10:00am-11:30am

### RETAINING AND CUTOFF WALL DESIGN AND CONSTRUCTION

*Moderators:* Ken Fishman, P.E., McMahon & Mann Consulting Engineers, P.C. and Nasser Massoudi, Ph.D., P.E., Bechtel

**Emergency Bridge Pier Foundation Repair with Pressed-in Piles**

Takefumi Takuma, A.M.ASCE, Giken America Corp.; Takayuki Sakai

**Soil-Bentonite Slurry Trench Cutoff Wall Longevity**

Daniel Ruffing, P.E., M.ASCE, Geo-Solutions, Inc.; Jeffrey Evans, Ph.D., P.E., F.ASCE, Bucknell University; Nathan Coughenour, Geo-Solutions, Inc.

**Evaluation of Water Vapor Sorption and Electrical Conductivity Methods to Determine Bentonite Content of a Soil-Bentonite Barrier**

Idil Deniz Akin, Ph.D., A.M.ASCE, University of Wisconsin-Madison; Jiannan Chen, Ph.D., A.M.ASCE, Southwest Jiaotong University; Craig Benson, Ph.D., P.E., NAE, University of Virginia; William Likos, Ph.D., M.ASCE, University of Wisconsin-Madison

**Challenges on Sheet piling, Shoring and Underpinning Projects**

Morgan Eddy, P.E., MASCE, Steele Foundation LLC; Sharon Hartley, Steele Foundation LLC

## CITRON EAST – 10:00am-11:30am

### MECHANICALLY STABILIZED EARTH AND GEOSYNTHETIC-REINFORCED SOIL SYSTEMS

*Moderator:* Ben Leshchinsky, Ph.D., Oregon State University

**Numerical Investigation of the Performance of Geosynthetic Reinforced Soil-Integrated Bridge System (GRS-IBS) under Working Stress Condition**

Murad Abu-Farsakh, Allam Ardah, Louisiana State University; George Voyiadjis, Ph.D., Louisiana State University

**Lateral Resistance of Abutment Piles Near Mechanically Stabilized Earth Walls**

Kyle Rollins, Ph.D., Brigham Young University; Andrew Luna, Caruso Turley Scott, Structural Engineers; Ryan Budd, US Army Corps of Engineers; Robert Gladstone, P.E., M.ASCE, Association for Mechanically Stabilized Earth; Jason Besendorfer, Cody Hatch

**Numerical Investigation on the Performance of Geosynthetic-Reinforced Soil Piers under Axial Loading**

Mahsa Khosrojerdi, The Pennsylvania State University; Tong Qiu, Ph.D., P.E., The Pennsylvania State University; Ming Xiao, Ph.D., P.E., The Pennsylvania State University; Jennifer Nicks, Ph.D., P.E., Federal Highway Administration

**Prediction Model for Estimating the Immediate Settlement of Foundations Placed on Reinforced Soil**

Mahsa Khosrojerdi, The Pennsylvania State University; Ming Xiao, Ph.D., P.E., The Pennsylvania State University; Tong Qiu, Ph.D., P.E., The Pennsylvania State University; Jennifer Nicks, Ph.D., P.E., Federal Highway Administration

**A Systematic Approach to Asset Management for Mechanically Stabilized Earth Walls**

Ashley Mac Millan, P.E., Geocomp; Jerry DiMaggio, P.E., D.GE., Applied Research Associates

**Interface Studies on Geogrid and Fly Ash**

Bhargav Kumar K P, M.Tech, IIT Hyderabad; Umashankar Balunaini, Ph.D., IIT Hyderabad

## SABAL A – 1:00pm-2:30pm

### MICROPILES - CASE HISTORIES AND LESSONS LEARNED

*Moderator:* Steve Davidow, P.E., S.E., P.Eng., Quanta Subsurface

**Micropile Bridge Substructure Replacements: Innovative Approaches to Overcoming Unique Design and Construction Challenges through the Design/Build Process**

Frank DiSalvo, P.E., Moretrench American Corporation; Stephen Mascia, P.E., Ecco III Enterprises, Inc.

**Design and Installation of Micropile Foundations for a Suspension Bridge**

Justin Lewis, P.E., Hayward Baker Inc.

**Delaware River Bridge Repair Rapid Response**

Yaser Taheri, P.E., M.ASCE, Moretrench American Corporation; Michael McNicholas, P.E., M.ASCE, Tai Luu, P.E., M.ASCE

**High Capacity Macropiles™ for a New 70 Story Tower in Manhattan**

John Grillo, P.E., M.ASCE, Hayward Baker, Inc.

FRIDAY, MARCH 9 (CONT)

SABAL A – 1:00pm-2:30pm (Cont)

**Foundations for the Bronx-Whitestone Bridge Queens and Bronx Approaches Reconstruction**

Mangtao Du, P.E., WSP; Daniela Zellers, P.E., WSP

SABAL B – 1:00pm-2:30pm

**PRACTICAL ASPECTS OF FOUNDATION INSTALLATION AND INVESTIGATION**

*Moderator:* Sanjeev Malhotra, P.E., G.E., D.GE.

**Small Hole Drilling: The State of Practice**

Donald Bruce, Ph.D., D.GE, C.Eng., P.G. L.G., L.E.G., Geosystems, L.P.; Rudy Lyon, Center Rock Inc.

**Large Diameter Drilled Shafts: Load Testing and Numerical Analysis for Bridge Foundation Design**

Patrick Wilson, Ph.D., P.E., M.ASCE, Earth Mechanics, Inc.; Eric Brown, P.E., G.E., Earth Mechanics, Inc.; Hubert Law, Ph.D., P.E., Earth Mechanics, Inc.; John Koo, P.E., S.E.

**Characterizing the Strength of Tar Sands in Los Angeles, A Case History**

Travis Deane, MSCE, P.E., G.E., Shannon & Wilson, Inc.; Daniel Pradel, Ph.D., P.E., G.E., Shannon & Wilson, Inc.; Christopher Robertson, P.E., G.E., Shannon & Wilson, Inc.

**Scale Model Investigation of Pipe Pile Plugging**

Timothy Wood, Ph.D., The Citadel; Earnest Terrell, MSCE, EIT, Fugro USA Land, Inc; Joey Johnsen, CTA Architects and Engineers

**Full Scale Testing of Laterally Loaded Helical Pile Groups**

Mohammed Sakr, Ph.D., P.Eng, Sakr Geotechnical Consulting Ltd

**Resistance Factors for Side Friction and End Bearing of Drilled Shafts in Shales**

Thuy Vu, A.M.ASCE, University of Texas Rio Grande Valley; Erik Loehr, P.E., M.ASCE, University of Missouri Columbia

SABAL C – 1:00pm-2:30pm

**ELEVATING OUR GEOPROFESSION THROUGH BOARD CERTIFICATION**

*Moderator:* Allen Marr, Ph.D., P.E., NAE, D.GE., Geocomp Corporation

The purpose of this session is to inform the audience about the role of Board Certification in advancing the profession of geotechnical engineering. Representatives of the geotechnical profession, employers of geotechnical engineers, and clients will discuss the merits and drawbacks of board certification.

W. Allen Marr, P.E., D.GE., F.ASCE, NAE, President of Academy of GeoProfessionals (2017-2018)

Don Anderson, P.E., D.GE, F. ASCE, Past President, Academy of GeoProfessionals

Robert C. Bachus, PH.D., P. E., D.GE, M.ASCE

Elizabeth M. Smith, P.E., G.E., D.GE, M.ASCE

SABAL E – 1:00pm-2:30pm

**CONSTITUTIVE MODELING II**

*Moderators:* San Seung Jae Lee, Ph.D., Florida International University and Usama El Shamy, Ph.D., P.E., Southern Methodist University | Lyle

**Preliminary Results of Modeling of Ground Surface Deformation Due to a Subsurface Pressurized Crack**

Francisco Aguiniga, Ph.D., Dazhi Sun, Ph.D., Joseph Sai, Ph.D., Mohammed Faruqi, Ph.D., Soheil Razzaghi, EnTech Engineering, PC.; Jong-Won Choi, Ph.D., Texas A&M University- Kingsville

**A Microstructure-Based Finite Element Model to Estimate Hydraulic Properties in Fine-Grained Soils**

Shaoyang Dong, Ph.D., Case Western Reserve University; Xiong Yu, Ph.D., P.E., F.ASCE, Case Western Reserve University

**Probabilistic Analysis of Layered Slopes with Linearly Increasing Cohesive Strength and 2D Spatial Variability of Soil Strength Parameters Using Non-Circular Rlem Approach**

Sina Javankhoshdel, Ph.D., Rocscience Inc.; Brigid Cami, B.Sc, Rocscience Inc.; Richard Bathurst, P.Eng., Ph.D., FEIC, FCAE, Geo-Engineering Center at Queen's-RMC; Brent Corkum, Ph.D., Rocscience Inc.

**Influence of Mesh Size, Number of Slices, And Number of Simulations in Probabilistic Analysis of Slopes Considering 2D Spatial Variability of Soil Properties**

Brigid Cami, B.Eng, Rocscience Inc.; Sina Javankhoshdel, Ph.D., EIT, Rocscience Inc.; Richard Bathurst, Ph.D., GeoEngineering Centre at Queen's-RMC; Thamer Yacoub, Ph.D., P.Eng., Rocscience Inc.

**Large-scale Simulations of Foamed Glass Aggregate for Geotechnical Design Parameters**

Peyman Aminpour, M.ASCE, Drexel University; Kurt Sjoblom, A.M.ASCE, Ph.D., Drexel University; Seungcheol Yeom, Drexel University; Robert Swan, Jr., Drexel University; Archie Filshill, M.ASCE, Ph.D., Aero Aggregates; Timothy Stark, ASCE, Ph.D., P.E., University of Illinois at Urbana-Champaign

SABAL F – 1:00pm-2:30pm

**CHARACTERIZING THE BEHAVIOR OF SOILS**

*Moderators:* Cumaraswamy Vipulanandan (Vipu), Ph.D., P.E., University of Houston and Yazen Khasawneh, Ph.D., P.E., NTH Consultants, Ltd.

**A Comparison of Continuous Compaction Control Measurements with Localized In Situ Test Results**

Daniel Cacciola, P.E., M.ASCE, Gannett Fleming Engineers and Architects, P.C.; Christopher Meehan, Ph.D., P.E., M.ASCE, University of Delaware; William Baker, III, E.I.T., S.M.ASCE, University of Delaware; Faraz Tehrani, Ph.D., Deltares

**EAF Ladle Steel Slag as a Geo-material: Compaction and Shear Strength Characteristics**

Irem Yildirim, Ph.D., P.E., M.ASCE, Assitant Professor, MEF University; Monica Prezzi, Ph.D., A.M.ASCE, Professor, Purdue University

**Synthesizing Hydrophobic Sand and Comparison of Shear Strength Properties with Hydrophilic Sand**

Md Zahidul Karim, S.M.ASCE, Kansas State University; Stacey Tucker-Kulesza, Ph.D., P.E., M.ASCE, Kansas State University; Melanie Derby, Ph.D.

***Influence of Ionic Soil Stabilizer (ISS) Dosage on Stabilization Effectiveness of Expansive Soil***

Shi He, University of Texas at Arlington; Xinbao Yu, Ph.D., P.E., M.ASCE, University of Texas at Arlington; Sandesh Gautam, Laureano Hoyos, Ph.D., P.E., M.ASCE, University of Texas at Arlington

***Influence of Salinity of Pore Fluid on the Undrained Shear Strength of Clays***

Beena Ajmera, Ph.D., AM.ASCE, California State University, Fullerton; Binod Tiwari, Ph.D., P.E., M.ASCE, California State University, Fullerton; Florentino Ostrova, California State University, Fullerton

***Limitations of Classifications for Soils that Contain Diatom Microfossils***

Hend Al Shatnawi, New Mexico State University; Paola Bandini, Ph.D., P.E., M.ASCE, New Mexico State University

**SABAL G – 1:00pm-2:30pm**

**GEOSYNTHETIC/FIBER REINFORCEMENT**

*Moderators:* Ben Leshchinsky, Ph.D., Oregon State University and Melissa Beauregard, Ph.D., Air Force Academy

***Contaminant Transport when Crumb Rubber is Used as a Fill Material in Local Memphis Loess***

Jodie Crocker, E.I., Christian Brothers University; Andrew Assadollahi, Ph.D., P.E., Christian Brothers University

***Characterization of the Interface Resistance between Clays and Natural Hemp Fibers***

Ashtarout Ammar, M.E., American University of Beirut; Shadi Najjar, Ph.D., American University of Beirut; Salah Sadek, Ph.D., American University of Beirut

***Field Strength Properties of Cement Stabilized Soil by Pneumatic Flow Tube Mixing Method***

Masaki Kitazume, Ph.D., Tokyo Institute of Technology; Ali Maher, Ph.D., Rutgers, University of New Jersey; Masoud Janbaz, Ph.D., Rutgers, University of New Jersey; Robert Miskewitz, Ph.D., Rutgers, University of New Jersey; David Yang, Ph.D., JAFEC USA Inc.

***Implementation of T-Z Analysis Approach to Predict Pullout Test Results***

Gholam Hossein Roodi, Ph.D., University of Texas at Austin; Amr Morsy, University of Texas at Austin; Jorge Zornberg, University of Texas at Austin

***Improvement of Organic Soils at the Wood River Wetland in the Klamath Basin with Volcanic Materials from the Eruption of Mt. Mazama***

Matthew Sleep, Ph.D., Oregon Institute of Technology; Justin Millar, Washington State Department of Transportation; Steven Reed, Oregon Institute of Technology

**CITRON EAST– 1:00pm-2:30pm**

**ADVANCES IN ENERGY PILES II**

*Moderators:* Omid Ghasemi-Fare, Ph.D., University of Louisville; John McCartney, Ph.D., P.E., University of California San Diego

***Effects of Stratigraphy on the Response of End Bearing Heat Exchanger Pile Subjected to Thermal Load***

Dunja Peric, Ph.D., Kansas State University; Aaron Cossel, Kansas State University; Marta Miletic, Ph.D., Auburn University

***Experimental Investigation on the Effects of Temperature on Physical Properties of Sandy Soils***

Mohammad Joshaghani, Ph.D. Candidate, University of Louisville; Omid Ghasemi-Fare, University of Louisville; Mohammad Ghavami, Ph.D. Candidate, University of Louisville

***Axial Pull-Out Response of a Small Scale Concrete Pile Subjected to Cyclic Thermal Loading in Sand***

Rehab Elzeiny, Graduate Student, Lehigh University; Muhannad Suleiman, Ph.D., Lehigh University; Mu'ath Abu Qamar, Lehigh; Suguang Xiao, Ph.D., Lehigh University; Mohammed Al Khawaja, Ph.D., Qatar University,

***Numerical Analysis for Mechanical Behavior of Pipe Pile Utilized for Compressed Air Energy Storage***

Junyoung Ko, Ph.D., Texas Tech University; Hoyoung Seo, Ph.D., P.E., M.ASCE, Texas Tech University; Sihyun Kim, Ph.D., M.ASCE, Bradley University; Seunghee Kim, Ph.D., M.ASCE, University of Nebraska-Lincoln

***Analyses of the Thermo-Hydro-Mechanical Responses of Energy Foundation***

Chanjuan Han, Case Western Reserve University; Xiong (Bill) Yu, Ph.D., P.E., F. ASCE, Case Western Reserve University

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## SPECIAL EVENTS

### TUESDAY, MARCH 6

#### Harvey, Irma, Maria:

*Lessons from 2017 Atlantic Hurricane Season*

12:30pm-4:30pm – **Pindo C**

*Moderator:* Brad Keelor, Geo-Institute

The 2017 Atlantic hurricane season was one of the most active of the past 50 years. Hurricanes Harvey, Irma, and Maria severely impacted parts of the Southeastern United States, the Gulf of Mexico, and Caribbean Sea. In this panel, engineers from the National Science Foundation's Geotechnical Extreme Events Reconnaissance (GEER) team will share damage assessments, areas of resilience, and mitigation strategies for future hazards. Leading local and federal officials from the affected communities will discuss pre and post-storm data collection and operational challenges.

*Panelists:* Holly Weyers, Southeast Region Director, United States Geological Survey (USGS); Carol Haddock, P.E., M.ASCE, Acting Director, City of Houston Department of Public Works; Nina Stark, Ph.D., M.ASCE, Assistant Professor, Department of Civil and Environmental Engineering, Virginia Tech; Francisco Silva-Tulla, P.E., M.ASCE, Consultant

#### Academy of Geo-Professionals Induction Ceremony

4:00pm-6:00pm – **Citron North & Center**

Come share in the celebration of AGP's 12th Diplomate Induction Ceremony in the Academy's 9th year of existence. Each Diplomate in this class of board certified geotechnical engineers has achieved the Diplomate, Geotechnical Engineering (D.GE) credential and will be awarded with a certificate plaque and pin. You will hear about specialty certification within ASCE and learn about how you can become a D.GE from AGP President Don Anderson, Ph.D., P.E., D.GE, M.ASCE.

#### Welcome Reception

6:00pm-8:00pm – **Pool Lawn**

Welcome to the start IFCEE 2018 as we meet on the Pool Lawn and surrounding area for great food, friends and networking

opportunities. An evening to relax and enjoy before the hustle and bustle of the week's activities begin!

*Sponsored by:* BAUER-Pileco Inc.; Belltec; Champion Equipment Co.; DrillTools; Equipment Corporation of America; Geopier Foundation Company; R.W. Conklin, Saltus

### WEDNESDAY, MARCH 7

#### Symposium Honoring Dr. Jean-Louis Briaud

12:30pm-4:00pm – **Citron West**

5:30pm-6:30pm – **Areca**

Join Dr. Jean-Louis Briaud for a celebratory aperitif after the symposium in his honor. He will be available to sign copies of the book "Innovations in Geotechnical Engineering, A Symposium in Honor of Professor Jean-Louis Briaud"

### THURSDAY, MARCH 8

#### 50 Years of FHWA Geotechnics!

8:30am-10:00am – **Sabal C**

*Moderator:* Silas Nichols, P.E.

This panel session will discuss the impact of the Federal Highway Administration (FHWA) on geotechnical engineering and construction over the last half century. The panelists will address significant innovations and developments, and advances in practice that are the result of research and implementation programs at FHWA. Topics will include foundation alternatives, quality assurance, soil reinforcement, ground improvement, and risk management. The discussion will also include a look to the future of the geotechnical discipline.

*Panelists:* Jerry DiMaggio, P.E., D.GE, Applied Research Associates; Garland Likins, P.E., Pile Dynamics, Inc.; Dan Brown, Ph.D., P.E., D.GE, Dan Brown and Associates, PC; Barry Christopher, Ph.D., P.E., Consultant; Ryan Berg, P.E., D.GE, F.ASCE, Ryan R. Berg and Associates, Inc.; George Burke, P.E., D.GE, Hayward Baker, Inc.; Allen Marr, Ph.D., P.E., D.GE, Geocomp Corporation



## Invited Panel on Risk - A Rational Discussion (Cont.)

10:30am-12:00pm – Sabal C

*Moderator:* Dr. Dan Brown, P.E., D.GE, DFI President, Dan Brown and Associates, PC

This session is intended to gather engineers, contractors, equipment and material suppliers, researchers and owners together for a rational discussion about risk as related to foundation projects. The intent is to emphasize the importance of clearly identifying and allocating risk during tender phase so that risk can be mitigated by parties best positioned to manage them and risks that become realities can be addressed fairly. The format for the 90 minute session is a series of very brief presentations by panelists representing various perspectives followed by a facilitated discussion/Q&A with the audience. The session will be broadcast as a live webinar for those unable to attend the IFCEE conference in person. This session follows up the initial discussion held at the DFI Annual Conference in October 2017.

*Panelists:* Owner Perspective – Greg Scheiss, P.E., Florida Department of Transportation; Rick Kalson, Esq., Legal Perspective – Benesch, Friedlander, Coplan and Aronoff LLP; Terry Holman, Ph.D., P.E., General Contractor Perspective – Turner Construction Company; Steve Saye, P.E., Large Contractor Perspective – Kiewit Engineering Group; Rick Deschamps, Ph.D., P.E., Specialty Contractor Perspective – Nicholson Construction Company; Victor Donald, P.E., Geotechnical Engineer Perspective – Terracon

## Ground Improvement Design and QA/QC Considerations: Panel Discussion

1:00pm-2:30pm – Sabal G

*Moderator:* Dr. José L. M. Clemente, P.E., D.GE, Bechtel NS&E

Ground improvement systems have now reached a state of maturity in which they can reliably be used in numerous applications including liquefaction mitigation, increase in bearing capacity and reduction of settlement of shallow foundations and road embankments, etc. Despite the progress in the design and construction of ground improvement systems, several issues remain that deserve continued attention and discussion. A lingering issue that will be discussed relates to the role of specification writing, and the use of performance (design-build) vs. prescriptive specifications. This topic continues to generate

disputes between specification writers and ground improvement contractors. The other issue that will be discussed relates to the role of QA/QC programs, and the types of field tests that are appropriate for verification of adequate performance of ground improvement solutions. This will include types of load tests, their applications in design, and their interpretation. We propose to have an interactive discussion with a group of panelists composed of practitioners/academicians to address these topics. The proposed panel will consist of the following practitioners/academicians:

*Panelists:* Juan Baez, Ph.D., P.E., P.Eng., Advanced Geosolutions Inc (AGI); Giovanni Bonita, Ph.D., P.E., P.G., GEI Consultants, Inc.; George Filz, Ph.D., P.E., Virginia Polytechnic Institute and State University; Roberto Lopez, P.E., Malcolm Drilling Company, Inc.; Al Sehn, Ph.D., P.E., Keller/Hayward Baker, Inc.; Kord Wissmann, Ph.D., P.E., D.GE, GeoPier Foundation Company, Inc.

## The Nuts and Bolts of Building a Better Job

1:00pm-2:30pm – Sabal C

*Moderator:* Peggy Hagerty Duffy, P.E., D.GE, ADSC

Improvement of construction, from safety to constructability to affordability, is best accomplished through iterative input from professionals at each step of the process. Design engineers, owners, construction managers, general contractors, and specialty contractors all have unique knowledge and can help to optimize the finished product, if each new project benefits from the lessons learned on preceding projects. This session will cover three topics that are current in 2018: construction in heavy urban areas with restricted access (highlighting a difficult multi-story project in Boston, Massachusetts); management of airborne silica dust and protection of worker safety; and execution of post-grouting for drilled shafts. Each presenter will provide information about his respective topic with added insights into how construction in each situation could be improved with some specific design considerations on future projects. Although none of these issues will make or break a project, each will illustrate how thoughtful refinement of the nuts and bolts of a project can mean big improvements in cost, schedule, and successful performance of the finished product.

*Presenters:* Tony Barila, P.E., HUB Foundations Company; Blake Holton, P.E., Moretrench, Inc.; Erik Loehr, Ph.D., P.E., University of Missouri



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*Francesco Fiore* [f.fiore@soilmec.it](mailto:f.fiore@soilmec.it)

**THURSDAY, MARCH 8 (CONT.)**

**Invited Panel on DIGGS and Data Use in the GeoProfession**

3:00pm-4:30pm – Sabal C

*Moderator:* Allen Cadden, P.E., D.GE, Principal, Schnabel Engineering

Collecting, interpreting and presenting data has always been a key to good engineering and project delivery. We now collect, store and use data in ways never before imagined. This panel of invited speakers will briefly present the state of our practice in data collection, transmission and interpretation in the geoprofession beginning with an update on DIGGS, a look at load testing data, foundation drilling equipment, and grouting to set the background for how data will change our profession. Bring your questions and challenges to this group to help define the needs

and direction for data collection, exchange, and interpretation of the future.

*Panelists:* Scott Deaton, Ph.D., Data Forensics (DIGGS: working example of data transfer); Nick Machairas, NYU (Load Test data scheme); Gordian Ulrich, Equipment Corporation of America (Data in modern drill rigs); Gabriele Eccher, SWS Global (Grouting data management Mosul dam)

**FRIDAY, MARCH 9**

**Driven Piles: A Solution for Difficult Soil and Site Conditions**

8:00am-9:30am – Sabal C

*Moderator:* Gerry McShane, Service Steel Warehouse

Driven piles encompass versatile deep foundation elements that often are the most suitable solution to situations involving difficult



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subsurface conditions. Their special economic and technical features provide cost-effective and efficient foundations as far as design, constructability, schedule, cost and quality control are concerned. This session will explore how the driven pile can be an effective solution in a variety of problematic subsurface conditions and including vibration sensitive soils near settlement intolerant structures. Three presentations will cover specific design aspects, how constructability issues are overcome and explore the essential synergy of advanced materials and equipment to achieve expected outcomes.

*Presenters:* Mohamad Hussein, P.E., GRL Engineers; Dave Chapman, P.E., Blakeslee Arpaia Chapman Inc; Gerry McShane, Service Steel Warehouse

## History and Future of Industry-Academic Partnerships

10:00am-11:30am – Sabal C

*Moderators:* Patricia Gallagher, Ph.D., Drexel University, and Helen Robinson, P.E., GEI Consultants, Inc

This session will include a combination of brief presentations and networking activities to foster relationships between industry and academic partners that further practical research efforts. The networking portion of this session will include an organized activity to encourage development of new research ideas and partnerships among session participants. All IFCEE attendees interested in developing new research ideas or partnerships are invited to attend, including manufacturers, suppliers, contractors, consultants, students, professors, and government employees.

*Presenters:* Shobha Bhatia, Ph.D., Geotechnical Women Faculty from 1989-2017: A U.S. Case Study; Debra Laefer, Ph.D., P.E., America's Research-Active, Geotechnical Faculty Members: A Snapshot of the Community 7 Years On; Mary Ellen Large, P.E., D.GE (DFI), Peggy Hagerty Duffy, P.E., D.GE (ADSC), and Jennifer Nicks, Ph.D., P.E (FHWA): Industry and Government Research Funding Opportunities

## Elevating our GeoProfession through Board Certification

1:00pm-2:30pm – Sabal C

*Moderator:* Allen Marr, Ph.D., P.E., NAE, D.GE, GeoComp Corporation

The purpose of this session is to inform the audience about the role of Board Certification in advancing the profession of geotechnical engineering. Representatives of the geotechnical profession, employers of geotechnical engineers, and clients will discuss the merits and drawbacks of board certification. Significant time will be provided for questions and contributions from the audience. Participants in this session should gain considerable insight on the role and future of board certification to the geotechnical professional.

*Panelists:* W. Allen Marr, P.E., D.GE., F.ASCE, NAE, President of Academy of GeoProfessionals (2017-2018); Don Anderson, P.E., D.GE, F. ASCE, Past President, Academy of GeoProfessionals; Robert C. Bachus, Ph.D., P. E., D.GE, M.ASCE; Elizabeth M. Smith, P.E., G.E., D.GE, M.ASCE

## Final Night Progressive Reception

4:00pm-6:00pm – Pavilion Area

6:00pm-8:00pm – Outdoor Exhibits (Blue & Green Lots)

Don't miss the Congress' final event as we wrap up IFCEE 2018 in Orlando! We hope this week has been productive and educational for all and invite you join in our progressive reception. This event will launch from the Pavilion area, then make its way to the outdoor exhibit areas in the Blue and Green Lots at 6:00pm.

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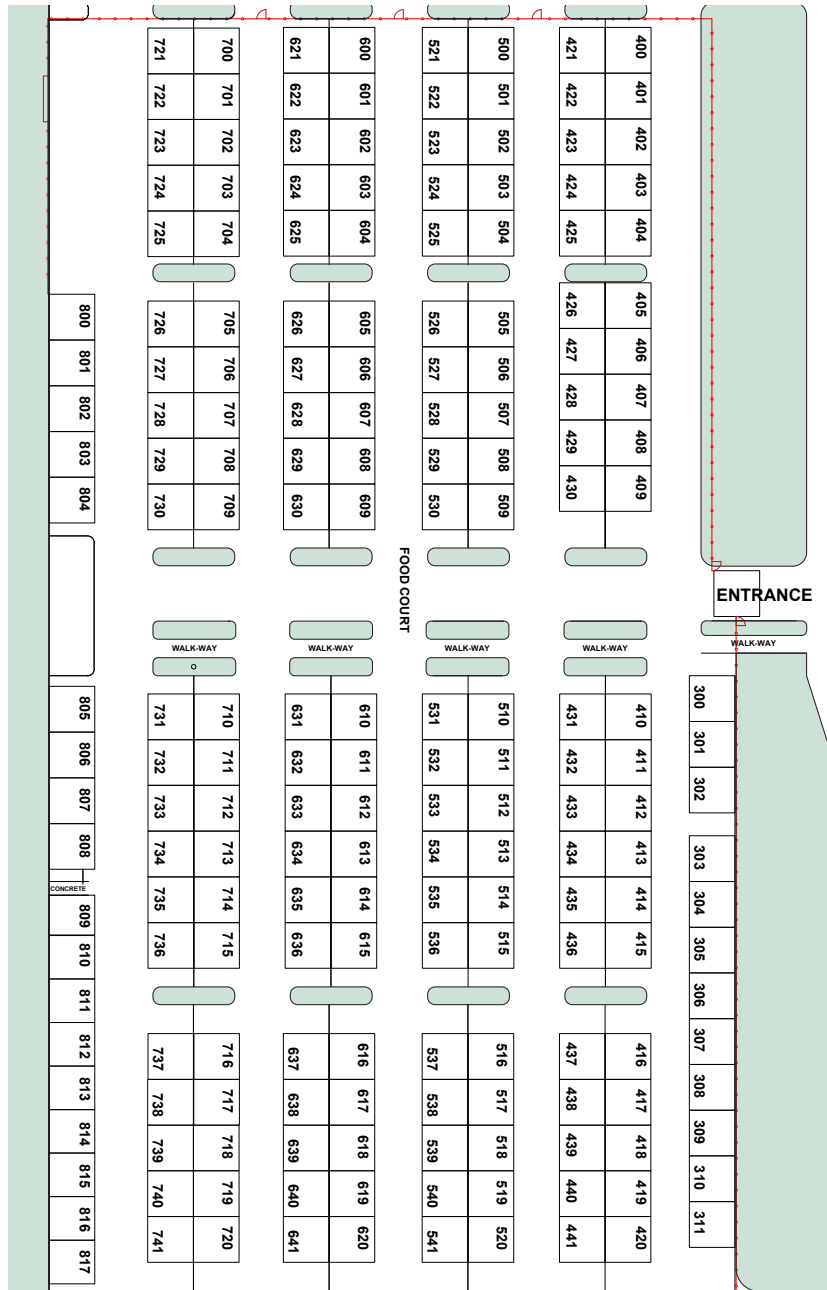
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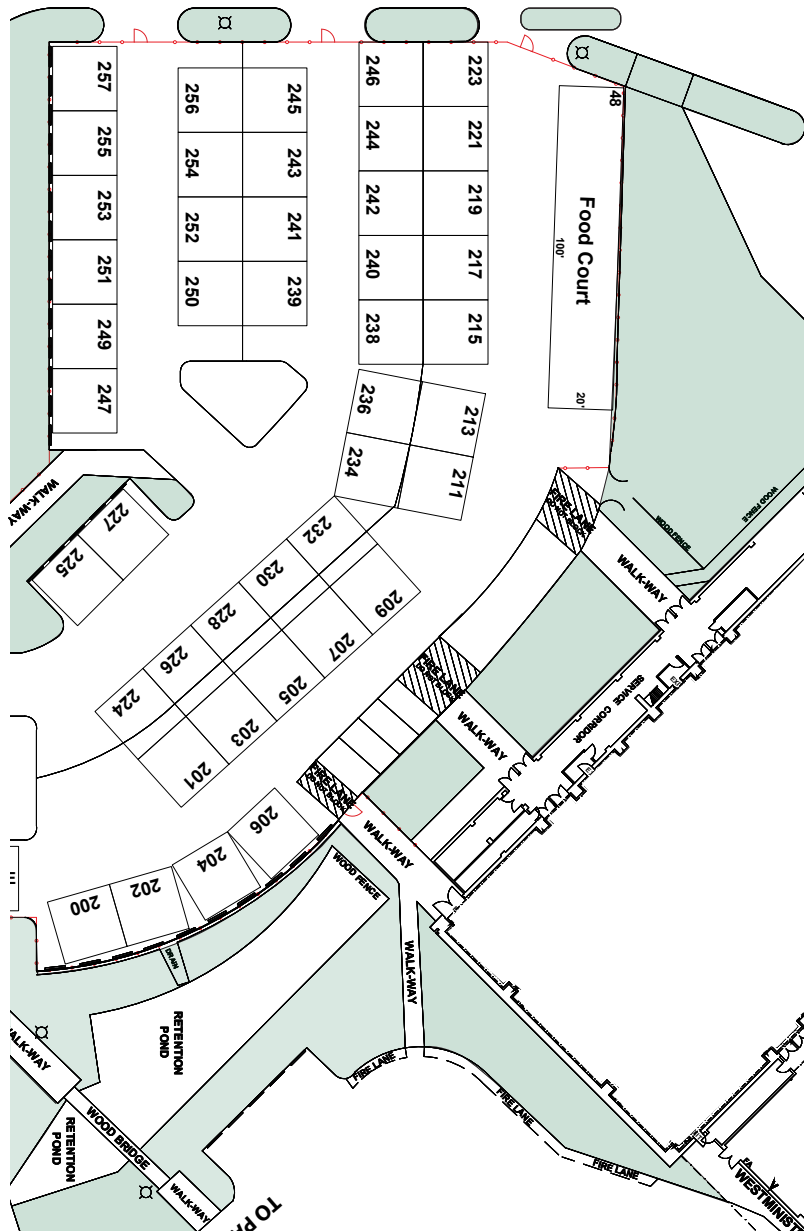
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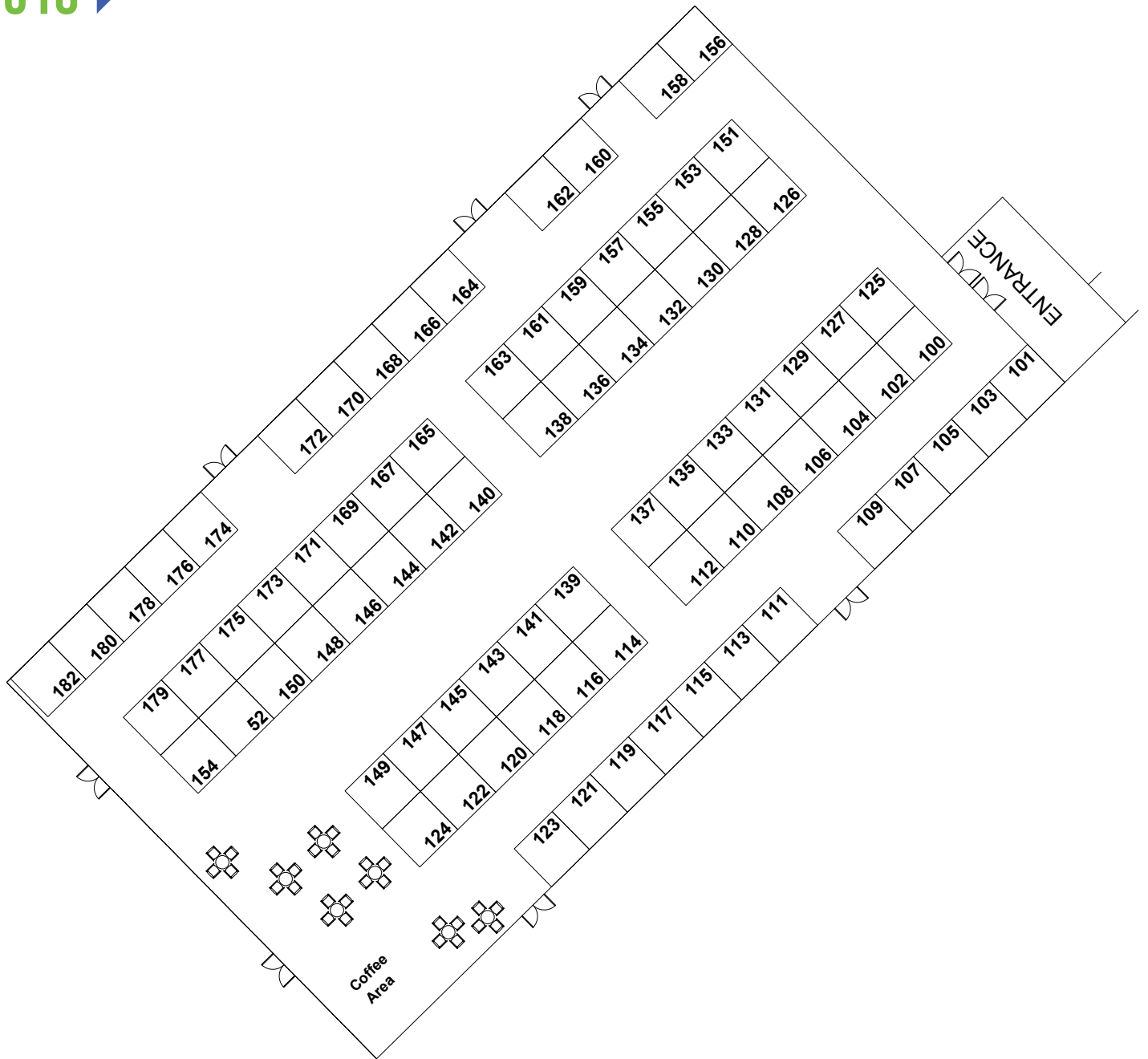
# GREEN LOT

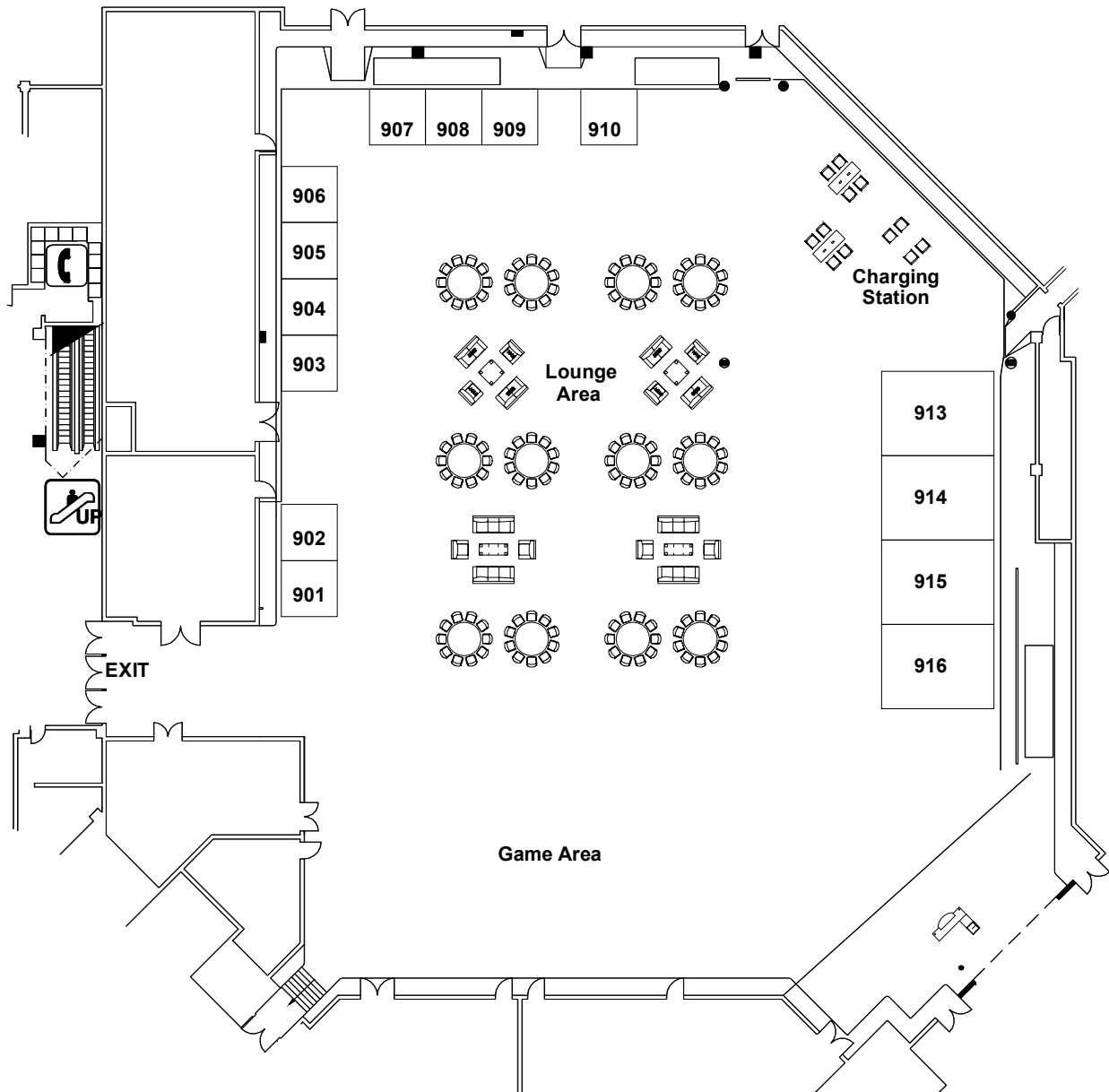




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PHONE: 469.359.6000 | FAX: 469.359.6007 | WEBSITE: ADSC-IAFD.COM | EMAIL: ADSC@ADSC-IAFD.COM

**ADSC** - International Association of Foundation Drilling is a professional, international, trade association representing the anchored earth retention, drilled shaft, micropile, and other heavy civil construction/design industries. Our members include specialty subcontractors, manufacturers and suppliers, academicians and design engineers in the private and public sectors. The **ADSC-IAFD** is served by a national staff and 12 regional chapters.



**AEROAGGREGATES | GREEN LOT #741**

1500 CHESTER PIKE | EDDYSTONE, PA 19022 USA | PHONE: 215.416.7373

WEBSITE: AEROAGGREGATES.COM | EMAIL: ARCHIE@AEROAGGREGATES.COM

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WEBSITE: AGLMFG.COM | EMAIL: HOLLOWBAR@AGLMFG.COM

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**AGP / AMERICAN SOCIETY OF CIVIL ENGINEERS | PALM EVENT CENTER #903**

1801 ALEXANDER BELL DRIVE | RESTON, VA 20191 | PHONE: 703.295.6314 | FAX: 877.488.9035

WEBSITE: GEOPROFESSIONALS.ORG | EMAIL: INFO@GEOPROFESSIONALS.ORG

AGP offers a post-license credential providing professional engineers further recognition in geotechnical engineering and is dedicated to improving practice, elevating standards, and advancing the profession.



**AMERICAN EQUIPMENT & FABRICATING | GREEN LOT #613, 634, 635**

100 WATER STREET | EAST PROVIDENCE, RI 02914 USA | PHONE: 401.438.2626 | FAX: 401.438.0764

WEBSITE: AMERICAN-EQUIPMENT.COM | EMAIL: J.ZITO@AMERICAN-EQUIPMENT.COM

American Equipment & Fabricating Corp. (AE&F) is a full service foundation equipment company providing rental, sales and service of a large variety of SOILMEC Drilling Equipment and Pile Driving Equipment, along with detailed engineering design and equipment fabrication for the heavy construction industry.

## AGGREGATE TECHNOLOGIES | GREEN LOT #721

10700 TOWER OAKS BLVD. | HOUSTON, TX 77070 USA | PHONE: 281.579.7229  
EMAIL: GREG@AGGREGATETECHNOLOGIES.COM | WEBSITE: AGGREGATETECHNOLOGIES.COM



ATI is a full-service concrete cutting firm with a wide-ranging array of concrete capabilities. With cutting-edge equipment, we will find a way to get the job done safely, efficiently, and precisely. With top-of-the-line diamond blades, wire saws, and core drills, Aggregate Technologies is prepared for any job.

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9400 LE SAINT DR. | FAIRFIELD, OH 45014 USA | PHONE: 513.942.1488  
EMAIL: COMMUNICATIONS@AIREQUIPMENTRENTAL.COM | WEBSITE: AIREQUIPMENTRENTAL.COM



Air Equipment Rental Corp competes in all aspects of the portable diesel compressor market. Our high Volume/high pressure focused rental fleet includes individual compressors up to 1800CFM and 500 PSI with the fleet volume to handle large demands.

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7032 SOUTH 196TH ST. | KENT, WA 98032 USA | PHONE: 800.248.8498 | FAX: 253.872.8710  
WEBSITE: WWW.APEVIBRO.COM | EMAIL: DANC@APEVIBRO.COM



APE is a world leader in foundation systems, including vibratory, diesel, and hydraulic pile drivers; drilling and wick drain systems, as well as the highly efficient HD Piling system. APE Piling produces high strength, cost effective steel piling and for countless applications. From the world's largest piles to more conventional applications, APE drives deeper.

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PHONE: +90.312.4240409 | FAX: +90.312.4240410 | EMAIL: INFO@ARMADOR.COM.TR



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**ATLAS COPCO MINING & CONSTRUCTION USA LLC. | GREEN LOT #510, 511, 512, 531, 532, 533**

3700 EAST 68TH AVE | COMMERCE CITY, CO 80022 USA | PHONE: 610-428-4977 | EMAIL: SCOT.SIMON@US.ATLASCOPCO.COM  
WEBSITE: EPIROC.COM

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1855 E. 122ND STREET | CHICAGO, IL 60633 USA | PHONE: 816.863.3180 | FAX: 816.734.1297  
EMAIL: CHRIS.RAGAN@ATLASTUBE.COM | WEBSITE: ATLASPIPEPILES.COM

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WEBSITE: BAROIDIDP.COM | EMAIL: IDP@BAROIDCOM

Baroid Industrial Drilling Products supplies a comprehensive line of drilling, grouting, plugging, abandonment, well rehabilitation and well development products engineered to optimize performance and cost effectiveness to end-users in wide ranging and diverse markets.



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FAX: 713.691.0089 | WEBSITE: BAUERPILECO.COM | EMAIL: INFO@BAUERPILECO.COM

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BAUER-Pileco is a leading global provider of foundation equipment and service to the construction industry. Recognized for its technological advances and innovation, BAUER-Pileco and its network of dealers represent the BAUER Group across North America.

## **BAY SHORE SYSTEMS, INC. | BLUE LOT #200, 201, 202, 203, 204, 206, 224, 226**

14206 N. OHIO STREET | RATHDRUM, ID 83858 USA | PHONE: 208.687.3311 | FAX: 208.687.4153

WEBSITE: BAYSHORESYSTEMS.COM | EMAIL: SALES@BAYSHORESYSTEMS.COM



Founded in 1978, Bay Shore Systems is a leading manufacturer of foundation drilling and earth retention equipment serving customers nationally and internationally. Focused on building top quality custom excavator and truck mounted drilling attachments, Bay Shore is known worldwide for its LoDrill, TR Series, LAD and AERA drill rigs.

## **BELLTEC INDUSTRIES INC. | BLUE LOT #257**

PO BOX 270 | BELTON, TX 76513 USA | PHONE: 254.939.9404 | FAX: 254.939-9408

WEBSITE: BELLTEC.NET | EMAIL: ALAN@BELLTEC.NET



Belltec is a global supplier & manufacturer of Foundation, Utility & Construction Auger Tooling products: Hydraulic Auger Drives, Consumables, Conical, Dirt Teeth & Blocks, Pilots, Pockets, Subs & Kelly Boxes, Hex Hubs & Bars, Rock & Dirt Augers, Core Barrels, Mud Buckets and Adaptors.

## **BERKEL | PAVILION #133,135**

2649 S. 142ND STREET, P.O. BOX 335 | BONNER SPRINGS, KS 66012 USA | PHONE: 800.536.5305 | FAX: 913.441.0402

WEBSITE: BERKELANDCOMPANY.COM | EMAIL: INFO@BERKELANDCOMPANY.COM



BERKEL is a Geotechnical contractor offering design-build services including Auger Pressure Grouted (APG) and Displacement (APGD) Piles, Ground Improvement, Liquefaction Mitigation, Sheet piling & Shoring, Underpinning, Secant/Tangent Pile Walls, Anchors, Tiebacks, Driven Piles and Drilled Shafts.

## **BERMINGHAMMER FOUNDATION EQUIPMENT | PAVILION #173,175**

600 FERGUSON AVENUE NORTH | HAMILTON, ONT L8L 4Z9 CANADA | PHONE: 905.528.7924

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## **BIT BROKERS INTERNATIONAL | PAVILION #169**

5568 LOGAN RD. | WEST FRANKFORT, IL 62896 USA | PHONE: 618.435.5811 | FAX: 618.435.2388

WEBSITE: BITBROKERS.COM | EMAIL: CHESTER@BITBROKERS.COM



Bit Brokers International is the #1 source for rock drilling tooling. Our products include but are not limited to tricones, hammers, hammer bits, PDC bits, roller cone hole openers, PDC hole openers, tricone cutters, bolt on cutters, and tricone cutter core barrels. Visit us at booth 169!



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**CASAGRANDE USA | GREEN LOT #705, 706, 726, 727, 728, 729, 730**

290 NORTH CHURCH ROAD | SPARTA, NJ 07656 USA | PHONE: 973.579.1906 | FAX: 973.579.1907  
WEBSITE: CASAGRANDE-USA.COM | EMAIL: R.ROBERTSON@CASAGRANDEGROUP.COM

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805 E. 31ST STREET | LAGRANGE PARK, IL, 60526 USA | PHONE: 708.354.7112 | FAX: 708.354.3881  
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EMAIL: SALES@COMACCHIO.COM



## CONETEC, INC. | GREEN LOT #813

PO BOX 22082 | SALT LAKE CITY, UT 84122 USA | PHONE: 801.973.3801 | FAX: 801.973.3802  
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**CON-TECH SYSTEMS, LTD. | PAVILION #178, 180**

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EMAIL: BLAND@CONSOLIDATEDPIPE.COM

Consolidated Pipe & Supply Company, Inc. is the premier National distributor for Pipe/Casing, H-Pile, Sheet Pile, Wide Flange, Coatings, Pipe Accessories. Office Locations: Birmingham, AL - Atlanta, GA - Blue Bell, PA - Chicago, IL



**CONTRACTORS MATERIALS COMPANY | GREEN LOT # 816**

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WEBSITE: CMCMML.COM | EMAIL: EFRIES@CMCMML.COM

Contractors Materials Company is located in Cincinnati, OH and is a 109 year old company. We specialize in the supply and custom fabrication products used in commercial, industrial, and heavy-highway reinforced concrete construction for cast-in-place, precast, and restoration contractors.



**CORPAC STEEL PRODUCTS CORP. | GREEN LOT #740**

20803 BISCAYNE BLVD., SUITE 50 | AVENTURA, FL 33180 USA | PHONE: 305.918.0540  
WEBSITE: CORPACSTEEL.COM | EMAIL: BSPENCER@CORPACSTEEL.COM

Corpac Steel Products (<http://www.corpacsteel.com>) is a leading global distributor of steel products specializing in line pipe, pipe piling, H-beams, sheet piling and fabrication. Founded in 1992, Corpac is ISO 9001:2015 certified in the United States.



**COX INDUSTRIES | PAVILION #113**

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WEBSITE: COXWOOD.COM | EMAIL: AEDWARDS@COXWOOD.COM

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WEBSITE: CRMJETTING.IT | EMAIL: INFO@CRMJETTING.IT

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## CZM FOUNDATION EQUIPMENT | GREEN LOT #605, 606, 626, 627

145 EAST INDUSTRIAL BOULEVARD | PEMBROKE, GA 31321 USA | PHONE: 912.200.7654 | FAX: 912.653.5211  
WEBSITE: CZM-US.COM | EMAIL: BARRETT.RAHN@CZM-US.COM



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1220 S. 356TH ST. | FEDERAL WAY, WA 98003 USA | PHONE: 253.838.1402 | FAX: 253.874.6574  
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## DEEP FOUNDATIONS INSTITUTE | PALM EVENT CENTER # 915

326 LAFAYETTE AVENUE | HAWTHORNE, NJ 07506 USA | PHONE: 973.423.4030 | FAX: 973.423.4031  
WEBSITE: DFI.ORG | EMAIL: TENGLER@DFI.ORG



DFI is an international association of contractors, engineers, suppliers, academics and owners in the deep foundations industry. We bring together professionals for networking, education, communication and collaboration. Our multi-disciplinary membership helps create a consensus voice and common vision for continual improvement in the planning, design and construction of deep foundations.



**DEEP EXCAVATION LLC | PAVILION #104**

30-62 STEINWAY STREET, #188 | ASTORIA, NEW YORK 11103 USA | PHONE: 206.279.3300 | FAX: 206.279.3062  
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40650 HURLEY LANE | PAEONIAN SPRINGS, VA 20129 USA | PHONE: 540.882.4404 | FAX: 540.882.4190  
WEBSITE: DENSIFICATION.COM | EMAIL: CHRIS@DENSIFICATION.COM

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**DIGGA NORTH AMERICA | PAVILION #163**

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WEBSITE: DOOSANPORTABLEPOWER.COM | EMAIL: PORTABLEPOWERSALES@DOOSAN.COM

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WEBSITE: DRILLERSCHOICEINC.COM | EMAIL: TIMC@DRILLERSCHOICEINC.COM

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## DRILLINGWORLD | PAVILION #148, 150

1458 MARIANI COURT | TRACY, CA 95376 USA | PHONE: 800.331.9988 | FAX: 209.839.9897  
WEBSITE: WWW.DRILLINGWORLD.COM | EMAIL: SALES@DRILLINGWORLD.COM



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WEBSITE: WWW.DRILLTOOLSINC.COM | EMAIL: SALES@DRILLTOOLSINC.COM



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## DUROTERRA LLC | PAVILION # 125

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320 MARMON DRIVE | BOLINGBROOK, IL 60440 USA | PHONE: 562.577.0741  
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## EARTH CONTACT PRODUCTS | PAVILION #179

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WEBSITE: WWW.ESCLIMITED.COM | EMAIL: KHIGGINS@ESCLIMITED.COM

The Engineering Consulting Services (ECS) group of companies is comprised of six operating entities providing geotechnical engineering, construction materials testing, environmental consulting, and facilities engineering services for a wide array of projects and clients. ECS currently operates in 50 locations throughout the Mid-Atlantic, Midwest and Southeast.



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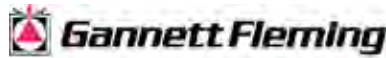
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The Geo-Institute is an organization of individual and organizational members, and affiliated local Chapters and graduate student organizations serving the geoprofession. The membership we serve includes engineers, scientists, engineering geologists, contractors, and technologists who do work in the geotechnical and geoprofessional arenas.

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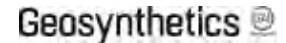
**GEOSYNTEC CONSULTANTS | PAVILION #172**

900 BROKEN SOUND PARKWAY N.W., SUITE 200 | BOCA RATON, FL 33461 USA | PHONE: 561.995.0900  
FAX: 561.995.0925 | WEBSITE: WWW.GEOSYNTEC.COM | EMAIL: CCRUSE@GEOSYNTEC.COM

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International Drilling Equipment is a prominent supplier of Foundation Drilling, Ground Improvement, and Grouting Equipment, plus Tooling. Committed to technical and after-sales support; backed with an extensive parts inventory, and reinforced by experienced and knowledgeable personnel, we can ensure the highest quality products and the best possible product support.



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**LIEBHERR USA CO. | GREEN LOT #417, 418, 438, 439**

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FAX: 703.560.2392 | WEBSITE: [WWW.NCCCO.ORG](http://WWW.NCCCO.ORG)

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With manufacturing locations in both Canada and the U.S., Samuel Roll Form Group is a leading producer and supplier of Hot Rolled Cold Formed sheet piles in North America. Additional Heavy Construction products that we sell include Hot Rolled Sheet Piles, H-pile, Pipe pile, Beams, Pile Points and Tie Rods.

## SAS STRESSTEEL INC. | PAVILION #156

100 NEW DUTCH LANE | FAIRFIELD, NJ 07004 USA | PHONE: 973.244.5995 | FAX: 973.244.0544  
WEBSITE: WWW.STRESSTEEL.COM | EMAIL: DION.GRAY@STRESSTEEL.COM



SAS Stressteel is the most trusted distributor of high strength threaded bars used for rock anchors, micropiles and soil nails. In addition to the exclusive distribution of ANP hollow bars, SAS Stressteel also manufactures strand anchors for tiebacks and tiedowns. Strategically located throughout the US.

## SCHNABEL FOUNDATION COMPANY | PAVILION #141

45240 BUSINESS COURT, SUITE 250 | STERLING, VA 20166 USA | PHONE: 703.742.0020 | FAX: 703.742.3319  
WEBSITE: WWW.SCHNABEL.COM | EMAIL: HANK@SCHNABEL.COM



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## SCOTT POWERLINE & UTILITY EQUIPMENT | PAVILION #130

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WEBSITE: WWW.SCOTTPOWERLINE.COM | EMAIL: JJOHNSON@SCOTTPOWERLINE.COM



Monroe, LA-based Scott Powerline & Utility Equipment rents, sells, and services a wide range of equipment to serve the drilling industry. Our product offering includes boom trucks, Mantis cranes, and both excavator & truck mounted drills. We also provide auger tooling from a number of leading manufacturers.



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**SKYLINE STEEL | PAVILION #112**

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WEBSITE: WWW.SKYLINESTEEL.COM | EMAIL: SYLVANA.SALGADO@SKYLINESTEEL.COM

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**SOILMEC NORTH AMERICA | GREEN LOT #610, 611, 612, 631, 632, 633, 713, 714, 715, 734, 735, 736**

4015 SOUTH FWY | FT. WORTH, TX 76110 USA | PHONE: 817.927.8486  
WEBSITE: WWW.SOILMECNA.COM | EMAIL: M.CHIARABELLI@SOILMEC.IT

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**SPECRETE-IP INCORPORATED | PAVILION #140**

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112 FM 153 | SMITHVILLE, TX 78957 USA | PHONE: 512.237.4140 | FAX: 512.237.4143  
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WEBSITE: STARIRONWORKS.COM | EMAIL: RICH.GALLINA@STARIRONWORKS.COM

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5637 OAK MOUNTAIN LAKE RD. | BIRMINGHAM, AL 35242 USA | PHONE: 470.246.0258  
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