

# Geotechnical Frontiers 2017: Seismic Performance and Liquefaction



Selected Papers from the  
Proceedings of Geotechnical Frontiers 2017

**GSP 281**



**Edited by**  
Thomas L. Brandon, Ph.D., P.E.  
Richard J. Valentine, P.E.



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GEOTECHNICAL SPECIAL PUBLICATION NO. 281

# GEOTECHNICAL FRONTIERS 2017

## *SEISMIC PERFORMANCE AND LIQUEFACTION*

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SELECTED PAPERS FROM SESSIONS OF  
GEOTECHNICAL FRONTIERS 2017

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March 12–15, 2017  
Orlando, Florida

SPONSORED BY

Industrial Fabrics Association International

Geo-Institute of the American Society of Civil Engineers

EDITED BY

Thomas L. Brandon, Ph.D., P.E.

Richard J. Valentine, P.E.



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# Preface

Geotechnical Frontiers 2017 was held in Orlando, FL, on March 12-15. It is the third conference co-sponsored by the Industrial Fabrics Association International (IFAI) and the American Society of Civil Engineers' Geo-Institute (G-I). Other supporting organizations are acknowledged below.

The conference includes topics which illustrate that our understanding of traditional subjects, such as the physical properties of soils, the stability of slopes, the details of mechanically-stabilized earth, the design of roadways and the efficacies of geosynthetics remains far from complete. It also includes topics that reflect the dynamic and evolving nature of our industry, such as thermal properties of soils, energy geostructures, coastal engineering and measures to process coal combustion residuals.

The conference was organized with eight concurrent technical sessions over a period of three days. Most sessions are 90-minutes-long, and ideally, contain five to six presentations. These constraints limited the total number of slots that are available for paper presentations, and consequently, the total number of papers that can be included in the proceedings. This is because, according to the conference rules, a paper must be presented in order to be published in the proceedings.

We received 893 abstracts for the conference. Each abstract was reviewed by the two technical session co-chairs and by at least one of the conference technical co-chairs. Of the 689 abstracts that were accepted, 583 resulted in draft manuscript submittals. Each manuscript received at least two reviews. At the end of this process, 361 manuscripts were recommended for publication in the six volumes of these proceedings. Unfortunately, the limited number of presentation slots made it necessary to decline many fine papers. We encourage the authors to submit at other venues.

Geotechnical Frontiers is also the venue for special presentations of invited and award lectures. Prof. Kerry Rowe presented the Terzaghi Lecture, Prof. Vaughan Griffiths presented the Seed Lecture, and Prof. Ning Lu presented the Peck Lecture. The inaugural Robert. M. Koerner Award and Lecture debuted at this conference and George Koerner was the speaker. There was also a special honorary symposium in recognition of the distinguished career and countless contributions of Professor Mike Duncan.

**Thomas L. Brandon and Richard J. Valentine**, Editors  
**Barbara J. Connett**, Secretary General

## Conference Organizing Committee

The conference organizing committee started planning in March, 2015. The individuals listed below have been actively involved in the planning and production of the conference.

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## Additional Organizational Assistance

Many professional organizations contributed to the many components necessary to hold a conference like Geotechnical Frontiers 2017. These are listed below.

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Academy of Geo-Professionals (AGP)  
International Association of Foundation Drilling (ADSC)  
Association of Environmental and Engineering Geologists (AEG)

Association for Metallically Stabilized Earth (AMSE)  
 American Society of Civil Engineers – FL Section East Central Branch Geo-Institute (ASCE FL)  
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 Geosynthetic Institute (GSI)  
 International Association of Geosynthetic Installers (IAGI)  
 The Nonwovens Institute (NWI)  
 Pile Driving Contractors Association (PDCA)  
 Transportation Research Board (TRB)  
 United States Universities Council on Geotechnical Education and Research (USUCGER)

### **Supported by**

North American chapter of the International Geosynthetics Society (IGS-NA)

### **Under the Auspices of**

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*Geosynthetics* magazine  
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# Contents

## *Seismic Parameters*

|   |           |
|---|-----------|
| <b>What Can We Learn from Kappa (<math>\kappa</math>) to Achieve a Better Characterization of Damping in Geotechnical Site Response Models? .....</b> | <b>1</b>  |
| Ashly Cabas and Adrian Rodriguez-Marek  |           |
| <b>Damping and Shear Moduli of Laboratory-Prepared Mineral Mixtures .....</b>   | <b>10</b> |
| Beena Ajmera and Binod Tiwari   |           |
| <b>Use of Pore Pressure Response to Determine Shear Strength Degradation from Cyclic Loading .....</b>  | <b>19</b> |
| Beena Ajmera, Binod Tiwari, and Pavitra Pandey  |           |
| <b>Parametric Study on the Effectiveness of Deep-Soil Mixed Soil-Reinforcement Panels on Seismic De-Amplification at Soft Clay Sites .....</b>        | <b>27</b> |
| Prakash Khanal, Binod Tiwari, Beena Ajmera, Michael Mann, and Murtdha Al Quraishi   |           |
| <b>Centrifuge Modeling and Analysis of Soil Structure Interaction under Biaxial Dynamic Excitations .....</b>   | <b>37</b> |
| Omar El Shafee, Tarek Abdoun, and Mourad Zeghal   |           |
| <b>A Relationship between Modulus and Damping Provides for Simple, Unified Modeling of Both .....</b>   | <b>48</b> |
| Vincent P. Drnevich   |           |
| <b>Numerical Modelling of the Dynamic Behavior of Unsaturated Soils, Including Hydraulic Hysteresis .....</b>   | <b>61</b> |
| Bo Zhang and Kanthasamy K. Muraleetharan  |           |
| <b>Constant-Volume Cyclic Testing to Determine Input Parameters for the GMP Pore Pressure Generation Model .....</b>                                  | <b>71</b> |
| Carmine P. Polito   |           |
| <b>Measurement of Damping in Soils by the Resonant Column Test .....</b>  | <b>80</b> |
| Vincent P. Drnevich and Jeramy C. Ashlock   |           |
| <b>Estimation of Shear Wave Velocity in Centrifuge Models .....</b>   | <b>92</b> |
| Waleed El-Sekelly, Tarek Abdoun, and Vicente Mercado  |           |