Geotechnical Testing Journal

Contents:

- 281 A New Apparatus for Shear-Seepage Testing at the Clayey Soil-Structure Interface—Qianhui Liu, Yuzhen Yu, Bingyin Zhang, Xiangnan Wang, He Lv, and Zhenggang Zhan
- **300** Acoustic Emission of Sand during Creep under Oedometric Compression— Belinda Anna-Maria Bock, Friedrich Levin, Stefan Vogt, and Roberto Cudmani
- **318** An Improved Apparatus for Testing the Friction Variation of Soil-Structure Interface Induced by One-Dimensional Vibration—Shunhua Zhou, Haibo Jiang, Longlong Fu, Yao Shan, and Peijun Guo
- **332 Centrifuge Modeling Methodology for Energy Pile Pullout from Saturated Soft Clay**—Ismaail Ghaaowd and John S. McCartney
- 355 Suggested Method of Specimen Preparation for Triaxial Tests on Partially Saturated Sand—Abdülhakim Zeybek
- 371 Evaluation of Soil Strength from Variable Rate CPTU Tests in Silt— Annika Bihs, Mike Long, and Steinar Nordal
- **390** Laboratory Model Test of Fully Buried Portal Frame-Shaped Slope-Stabilizing Piles—Zihang Dai, Zhihua Qiu, Hengyang Li, Caijin Lu, and Jianhui Yang
- 411 Mechanical Consequence Observation and Microscopic Visualization of Internal Erosion Using Developed Plane Strain Erosion Apparatus— Mao Ouyang and Akihiro Takahashi
- **432 Polymer Quantification Methods for Geosynthetic Clay Liners Enhanced with Anionic Polymers**—*Anna Norris, Joseph Scalia, IV, and Charles D. Shackelford*
- 449 Challenges of the Filter Paper Suction Measurements in Geosynthetic Clay Liners: Effects of Method, Time, Capillarity, and Hysteresis—A. S. Acikel, A. Bouazza, R. M. Singh, W. P. Gates, and R. K. Rowe
- 468 Verification of Seismic Cone Penetration Test Calibration Chamber Tests on a Sand—Abouzar Sadrekarimi and Stephen Jones

TECHNICAL NOTES

- **490** New Method for Internal Pore-Water Pressure Measurements—Yawu Liang, Nicholas Beier, and D. C. Sego
- 503 Water Content of Moist-Tamped Nonplastic Specimens for Constant-Volume Direct Simple Shear Testing—Jiarui Chen, Scott M. Olson, Soham Banerjee, Mandar M. Dewoolkar, and Yves Dubief







ISSN: 0149-6115 Stock #: GTJ2203

www.astm.org

CO-EDITORS

Dr. Majdi A. Othman Geosyntec Consultants 1255 Roberts Blvd., NW Suite 200 Kennesaw, GA 30144 Tel: 678-202-9508 E-mail: mothman@geosyntec.com

Dr. Nazli Yesiller

Global Waste Research Institute California Polytechnic State University 1 Grand Ave. San Luis Obispo, CA 93407 Tel: 805-756-2932 E-mail: nyesille@calpoly.edu

EDITORIAL OBJECTI VES

The Geotechnical Testing Journal is published in six issues per year by ASTM International, a nonprofit technical organization that develops and publishes voluntary consensus standards and related information for materials, products, systems, and services. Some issues, in whole or inpart, may be Special Issues focused on a topic of interest to our readers. Contributions are peer reviewed prior to publication.

EDITORIAL SER VICES — SUBMISSIONS Sara Welliver

Supervisor, Peer Review Services Geotechnical Testing Journal Editorial Offices J&J Editorial Services 201 Shannon Oaks Cir #124 Cary, NC 27511, USA Tel: (919) 650-1459 ext. 210 E-mail: astm@jjeditorial.com

PURPOSE AND SCOPE

The purpose of the *Geotechnical Testing Journal* is (1) to provide a high-quality publication that informs the profession of new developments in soil and rock testing and related fields; (2) to provide a forum for the exchange of information, particularly that which leads to the development of new test procedures; and (3) to stimulate active participation of the profession in the work of ASTM International Committee D18 on Soil and Rock and related committees.

Contributions include papers, technical notes, letters to the editor, discussions of previously published papers, and book reviews. The editorial scope of this journal covers test methods for soil and rock, sampling, nomenclature, and practices relating to the determination of properties and behavior of soil and rock for engineering purposes, and for soil as a medium for plant growth. Topics of interest include: new testing equipment, apparatus, and procedures for both field and laboratory applications; evaluation of existing ASTM International standards and recommendations for new standards for apparatus or test procedures: and test results that give insights into test procedures, techniques, and data interpretation. Topics must be related to soil and rock, but may include use and testing of geosynthetic materials in conjunction with soil and rock, highway materials testing such as aggregate properties or pavement performance measurement, geophysical exploration, marine sediments, groundwater investigations, testing and stabilization of contaminated soils and soil and rock engineering related to waste management.

EDITORIAL BOARD

Dr. David W. Airey University of Sydney, Australia

Dr. Khalid A. Alshibli University of Tennessee Knoxville, TN, USA

Dr. Charles Aubeny Texas A&M University College Station, TX, USA

Dr. Richard J. Bathurst Royal Military College of Canada Kingston, Ontario, Canada

Dr. Paul J. Bullock Fugro Consultants, Inc. Gainesville, FL, USA

Dr. Andrew P. Bunger University of Pittsburgh Pittsburgh, PA, USA

Dr. Guojun Cai Southeast University Nanjing, China

Dr. Giovanni Cascante University of Waterloo, Canada

Dr. Bernardo Castellanos Virginia Tech Blacksburg, VA, USA

Dr. A. Viana da Fonseca University of Porto Porto, Portugal

Dr. Mandar Dewoolkar University of Vermont Burlington, VT, USA

Dr. Vincent P. Drnevich Purdue University W. Lafayette, IN, USA **Chadi El Mohtar** University of Texas at Austin Austin, TX, USA

Dr. Dante Fratta University of Wisconsin-Madison Madison, WI, USA

Dr. Majid Ghayoomi University of New Hampshire Durham, NH, USA

Dr. Karen S. Henry United States Air Force Academy USAF Academy, CO, USA

Dr. Laureano R. Hoyos The University of Texas at Arlington Arlington, TX, USA

Dr. Zoubeir Lafhaj École Centrale de Lille Lille, France

Mr. Michael W. Laney Terracon Consultants, Inc. Olathe, KS, USA

Professor Fook-Hou Lee National University of Singapore Singapore

Garland E. Likins Pile Dynamics, Inc. Cleveland, OH, USA

Dr. Michael Long University College Dublin, Ireland

Dr. Ning Lu Colorado School of Mines Golden, CO, USA

Mr. Robert Mackey S2L Inc. Maitland, FL, USA **Dr. Ali Maher** Rutgers University Piscataway, NJ, USA

Ms. Gabriela Mariscal National Concrete Masonry Association Herndon, VA, USA

Dr. John Scott McCartney University of California San Diego La Jolla, CA, USA

Mr. James A. McKelvey Earth Engineering, Inc. East Norriton, PA, USA

Dr. Jay N. Meegoda New Jersey Institute of Technology Newark, NJ, USA

Paola Monaco University of L'Aquila L'Aquila, Italy

Dr. Michael A. Mooney Colorado School of Mines Golden, CO, USA

Dr. Phillip S. K. Ooi University of Hawaii at Manoa Honolulu, HI, USA

Dr. Anand J. Puppala Texas A&M University College Station, TX, USA

Donald T. Robertson Applied Foundation Testing, Inc. Green Cove Springs, FL, USA

Dr. Joel Sarout Commonwealth Scientific and Industrial Research Organization Bentley, Australia **Dr. Devendra N. Singh** Indian Institute of Technology India

Dr. Khaled Sobhan Florida Atlantic University Boca Raton, FL, USA

Dr. Muhannad T. Suleiman Bethlehem, PA, USA

Dr. Anh Minh Tang École des Ponts ParisTech Marne-la-Vallée, France

Ingrid Tomac San Diego, CA, USA

Dr. George Veyera University of Rhode Island Kingston, RI, USA

Dr. Dharma Wijewickreme University of British Columbia Canada

Dr. Xiong Yu Case Western Reserve University Cleveland, OH, USA

ASTM International—GTJ, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959

EXECUTIVE COMMITTEE

Cesar A. Constantino, Ph.D., **Chair** Bill Ells, **Vice Chair** Bill Griese, **Vice Chair** Amer Bin Ahmed, **Finance and Audit Committee Chair** John R. Logar, **Past Chair** Andrew G. Kireta, Jr., **Past Chair** Katharine E. Morgan, **President**

DIRECTORS

Francine S. Boyard Michael J. Brisson Alexandra Florin Tripp Fischer Linda Freeman Janet L. Gbur, Ph. D. John Hadjioannou, P.E. Bonnie McWade-Furtado Timothy J. Morris Elise Owen Carol Pollack-Nelson, Ph.D. Christopher R. Reid, Ph.D. Casandra W. Robinson Julia Schimmelpenningh Brian P. Shiels Pamela M. Shinoda, P. Eng Debra R. Wilson Dalia Yarom

COMMITTEE ON PUBLICATIONS

William J. Likos, **Chair** K. Russell DePriest, **Vice Chair** Cesar A. Constantino, Ph.D., **ex officio** Jay Bhatt John E. Haddock Yinlun Huang Jason H. Ideker Ibironke Lawal M. R. Mitchell Richard W. Neu Majdi A. Othman Sudarsan Rachuri Donya Stubbs Theresa A. Weston Nazli Yesiller

INFORMATION FOR AUTHORS

For details regarding paper submission go to http://mc04.manuscriptcentral. com/astm-gtj. The subject matter must not be of a speculative nature and the contents must not include materials of an advertising nature. The paper must not be seriously defective as to literary form and structure, continuity of thought, and clarity of expression. The substance of the paper should not have been published previously in the open literature.

Authors preparing papers for submittal should observe the conventions of style explained in the ASTM Style Manual. Since the journal does not request page charges, the author is expected to conform to these standard conventions for style and the inclusion of complete references and high-quality figures. SI units are to be used throughout; if data were not measured in SI units, a note should appear to that effect and the original units should be included in parentheses after the SI units.

IN APPRECIATION OF THE REVIEWERS

The high quality of the papers that appear in this publication is a tribute not only to the obvious efforts of the authors represented but to the unheralded, though essential, efforts of their reviewers. It is to the reviewers' dedication to upholding the high standards of their profession that this note pays tribute. On behalf of ASTM International and the authors as well, we acknowledge with appreciation their important contribution to the success of this journal.

AWARDS FOR PAPERS

Papers are eligible for the following ASTM International awards:

- The C.A. Hogentogler Award papers on soils for engineering purposes.
- The Sanford E. Thompson Award papers on concrete and concrete aggregates.
- The Richard L. Templin Award papers on new and useful testing procedures and apparatus.
- The Geotechnical Testing Journal Award — papers on the practice of geotechnical testing.

PAST TECHNICAL EDITORS

Dr. Ernest T. Selig (March 1978 to September 1985)

Dr. Vincent P. Drnevich (December 1985 to December 1989)

Mr. Paul Knodel (March 1990 to December 1992)

Dr. Howard J. Pincus (March 1993 to December 1995)

Dr. Ronald C. Chaney and Dr. Kenneth R. Demars (March 1996 to June 2002)

Dr. Thomas C. Sheahan (July 2002 to December 2008)

Mr. L. David Suits (September 2002 to December 2017)

Geotechnical Testing Journal

(Print ISSN 0149-6115; E-ISSN 1945-7545) is published in six issues per year by ASTM International. Some issues, in whole or in part, may be Special Issues focused on a topic of interest to our readers. The views expressed in this journal are not those of ASTM International. The data and opinions appearing in the published material were prepared by and are the responsibility of the contributors, not of ASTM International

Copyright © 2022 ASTM

International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. All rights reserved. This material may not be reproduced or copied, in whole or in part, in any printed, mechanical, electronic, film, or other distribution and storage media without the written consent of the publisher. Subscriptions are in an onlineonly format

Individual subscriptions 1 year online access \$267.00

Institutional subscriptions (one geographic site via IP access) 1 year online access \$501.00

Single copies \$55.00

For multi-site subscription and pricing sales@astm.org

tel +1.877.909.ASTM

To subscribe

Please send prepaid order to ASTM International, Customer Service, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959 or visit www.astm.org.

Photocopy Rights

Authorization to photocopy items for internal, personal, or educational classroom use, or the internal, personal, or educational classroom use of specific clients, is granted by ASTM International provided that the appropriate fee is paid to:

Copyright Clearance Center 222 Rosewood Drive Danvers, MA 01923

tel +1.978.646.2600 http://www.copyright.com/