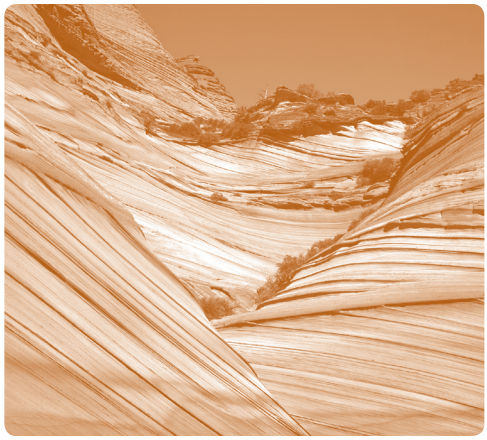

Geotechnical Testing Journal

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SPECIAL ISSUE ON FLAT DILATOMETER TESTING: APPLICATIONS AND RECENT DEVELOPMENTS
Guest Editors: Paola Monaco and António Viana da Fonseca

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EDITORIAL OBJECTIVES

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.

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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.

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Overview

Special Issue on *Flat Dilatometer Testing: Applications and Recent Developments*

The last decades in the field of site investigations have seen an increasing trend to move from the traditional practice based on drilling, sampling, and laboratory testing towards in situ testing, which today often represents the majority of the ground characterization approaches part of an investigation. In situ tests are fast, the results are available immediately, and, by easily covering higher volumes of soil, they are permitted to assess local site variability.

The flat dilatometer test (DMT), developed in Italy by professor Silvano Marchetti in the second half of the 1970s, has expanded the range of direct-push in situ tests and has been gaining increasing popularity in recent years, potentiated by the release of its seismic version (SDMT). Distinctively recognized contributions that the DMT can provide in a routine site investigation are mostly related to its sensitivity to stress history and soil stiffness.

The idea for this special issue on *Flat Dilatometer Testing: Applications and Recent Developments* was launched during the 3rd International Conference on the Flat Dilatometer—DMT'15 held in Rome, Italy, in June 2015. On that occasion, a large number of papers involving the use of DMT were submitted to the conference by researchers from many countries, covering a wide range of applications and demonstrating the increasing interest of the geotechnical scientific and professional community on the DMT and its applications. In the following months, after an in-depth discussion with Silvano Marchetti, we considered submitting a proposal for this special issue to the *Geotechnical Testing Journal*. In February 2017 the then Editors in Chief of the journal, William Likos and David Suits, accepted our proposal to put this special collection together. Sadly, Silvano Marchetti passed away in December 2016.

Contributions to this special issue were collected by inviting researchers who have been active and innovative in the use of DMT testing, aiming at presenting their works with new results and interpretation methods for geotechnical engineering. Ultimately 10 papers submitted in response to invitations were accepted after rigorous peer review. The final collection contains papers authored or co-authored by researchers located in nine different countries from Europe, North and South America, Asia, and Australasia.

This collection of papers includes an overview paper on recent improvements in using, interpreting and applying DMT/SDMT in practice. This paper summarizes Silvano's main views and reflects his latest research activity. Unfortunately he could not have been involved in the final stages of the manuscript preparation. The most significant intellectual contribution in the conception of the paper is due to him and was then finalized with the support of one of the guest editors.

The other papers cover recent developments in DMT/SDMT interpretation, significant applications, and test equipment. The following topics are addressed: updates on DMT interpretation in intermediate silts and in clays of different origin; theoretical and numerical modeling of the test; assessment of overconsolidation and cementation in sands from DMT; evaluation of changes in stress state due to pile installation and landslides in overconsolidated clay using the DMT; monitoring ground improvement for mitigation of liquefaction hazard using the SDMT; and new technological developments of DMT/SDMT equipment, including offshore testing.

We congratulate all of the authors who contributed to this special issue and thank the many reviewers who critically assessed the original manuscripts. We are indebted to the journal Editors, as well as to the ASTM editorial team, for their efforts to complete this project.

We are very grateful to be the guest editors of this special issue of the *Geotechnical Testing Journal* on *Flat Dilatometer Testing: Applications and Recent Developments* and for having an opportunity to emphasize the role of in situ tests in geotechnical practice. At the same time, we remind readers that the "Marchetti dilatometer" is, and will be, inseparably linked with the name of its inventor. We are highly indebted to his smart and open-minded influence and we will miss the many positive discussions, for so many years.

This special issue, having the purpose to leave a tribute to a prominent engineer and researcher in the field of ground characterization from in situ testing, will also encourage the geotechnical community to pursue innovative research contributions on flat dilatometer testing in view of its potentiality.

Paola Monaco
António Viana da Fonseca

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.

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