

# **DYNAMIC GEOTECHNICAL TESTING II**

**Ronald J. Ebelhar**

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**editors**

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# ***Dynamic Geotechnical Testing II***

*Ronald J. Ebelhar, Vincent P. Drnevich, and Bruce L. Kutter, Editors*

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The quality of the papers in this publication reflects not only the obvious efforts of the authors and the technical editor(s), but also the work of these peer reviewers. The ASTM Committee on Publications acknowledges with appreciation their dedication and contribution to time and effort on behalf of ASTM.

# Foreword

This publication, *Dynamic Geotechnical Testing II*, contains papers presented at the symposium of the same name, held in San Francisco, CA on 27–28 June 1994. The symposium was sponsored by ASTM Committee D-18 on Soil and Rock and Subcommittee D18.09 on Cyclic and Dynamic Properties of Soils. Ronald J. Ebelhar of RUST E&I in Cincinnati, OH; Vincent P. Drnevich of Purdue University in West Lafayette, IN; and Bruce L. Kutler of the University of California, Davis presided as symposium chairmen and are editors of the resulting publication.

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# Overview

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The first ASTM Symposium on Dynamic Geotechnical Testing was held in Denver, CO in June of 1977. In the intervening 16 years, there has been steady progress in cyclic and dynamic testing of soils for geotechnical engineering purposes and centrifuge testing has emerged as a new tool for understanding soil behavior and dynamic soil-structure interaction.

The Dynamic Geotechnical Testing II symposium was held in San Francisco in Jan. 1994 and was co-sponsored by ASTM Committee D18 on Soil and Rock for Engineering Purposes and ASTM Subcommittee D18.09 on Cyclic and Dynamic Properties of Soils.

As stated in the Call for Papers:

The primary goal for the symposium is to identify both established and innovative tests for determining cyclic and dynamic properties of soils which are candidates for standardization. A secondary goal is to provide a forum for a discussion of testing which has been conducted using standard methods. This will provide insight into considerations for modifying or extending existing standards.

With these goals in mind, authors were requested to consider presenting the following information in their papers:

- (1) description of the facilities, apparatus, and instrumentation used;
- (2) theoretical analyses of apparatus and instrumentation, or both;
- (3) results of experimental research;
- (4) analysis of experimental results; and
- (5) discussion of testing procedures, improvements, and guidelines.

The Symposium consisted of four one-half day sessions. The first three sessions had specific themes: Field Testing, Laboratory Methods, and Centrifuge Testing. The fourth session was a general panel discussion. Each of the first three sessions featured an invited presentation by a topic overview speaker and their papers are included in this special technical publication (STP). Each topic overview paper includes a general review of existing and new test methodologies and provides a review of the papers presented in that session. Some of the papers were presented at each of the sessions and others were presented at poster sessions that followed each of the sessions. The purpose of the general panel discussion was to integrate the salient points of the three sessions to obtain an improved understanding of geotechnical behavior under dynamic loading conditions.

This STP should provide an excellent reference document on current testing practice, emerging technologies, and additional information on measurement of soil properties under cyclic and dynamic loading conditions.

The decision on paper acceptance was difficult in that over 90 abstracts were submitted and space was only available for about 30 papers. Each accepted paper was reviewed by a minimum of three peer reviewers. Following revision by the authors, the manuscripts were re-reviewed by the editors and the ASTM staff. The Symposium co-chairmen express their appreciation to all authors who prepared manuscripts for this symposium. The reviewers also deserve thanks for assuring the quality of the papers.



The symposium co-chairmen express their appreciation to the topic overview speakers: Richard G. Campanella (University of British Columbia), Richard D. Woods (University of Michigan), and Ronald F. Scott (California Institute of Technology). The co-chairmen also wish to express their gratitude to the members of the Symposium Steering Committee who assisted with the Call for Papers, identifying reviewers, and completing reviews. The members of the Steering Committee were: Pedro De Alba, Roman Hryciw, Paul Knodel, Hon-Yim Ko, Derek Morris, Shamsheer Prakash, Adel Saada, Raymond Seed, Marshall Silver, Scott Steedman, Mladen Vucetic, and Les Youd. Finally, the co-chairmen are most appreciative of the support provided by Committee D-18, Richard S. Ladd Chairman, and the ASTM staff (Bob Morgan, Manager; Dorothy Savini, Symposia Manager; Kathy Dernoga, Manager, Acquisition and Review; and Therese Pravitz, Manuscript Coordinator; Acquisition and Review) in organizing this symposium and publishing this STP.

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