Pre-failure Deformation of Geomaterials

SATOKU SHIBUYA & TOSHIYUKI MITACHI
Hokkaido University, Sapporo, Japan
SEIICHI MIURA
Muroran Institute of Technology, Muroran, Japan

VOLUME 2

Under the auspices of the Japanese Society of Soil Mechanics and Foundation Engineering
A.A. BALKEMA/ROTTERDAM/BROOKFIELD/1995
### Table of contents

**Opening and closing ceremonies**

Opening ceremony
---
*S. Shibuya, S. Toki, Y. Yoshimi & M. Jamiolekowski*
- Opening ceremony: 701
- Closing ceremony: 703

Closing ceremony
---
*J. B. Burland*
- Closing remarks: 707
- Closing ceremony: 711

**Special lecture**

Development and application of a numerical model for the leaning tower of Pisa
---
*J. B. Burland & D. M. Potts*
- Development and application of a numerical model for the leaning tower of Pisa: 715

**Keynote lectures**

Standardization of laboratory test methods to determine the cyclic deformation properties of geomaterials in Japan
---
*S. Toki, S. Shibuya & S. Yamashita*
- Standardization of laboratory test methods to determine the cyclic deformation properties of geomaterials in Japan: 741

Effects of various parameters on the stiffness and damping of soils at small to medium strains
---
- Effects of various parameters on the stiffness and damping of soils at small to medium strains: 785

Remarks on the stiffness at small strains of six Italian clays
---
*M. Jamiolekowski, R. Lancellotta & D. C. F. Lo Presti*
- Remarks on the stiffness at small strains of six Italian clays: 817

Instability of sand in the pre-failure hardening regime
---
*P. V. Lade*
- Instability of sand in the pre-failure hardening regime: 837

One perspective of the pre-failure deformation characteristics of some geomaterials
---
*R. J. Jardine*
- One perspective of the pre-failure deformation characteristics of some geomaterials: 855

Stress-strain behaviour: Importance of mode and rate of load application for engineering problems
---
*S. Lacasse*
- Stress-strain behaviour: Importance of mode and rate of load application for engineering problems: 887
An approach to the prediction of ground movements in engineering practice: Background and application
D.W.Hight & K.G.Higgins

Stiffness of hard soils and soft rocks in engineering applications
E.Tatsuoka & Y.Kohata

Measurement of shear deformation of geomaterials – Laboratory tests
General report: Measurement of shear deformation of geomaterials in the laboratory
D.C.F. Lo Presti

Panelist discussion: Current test methods and procedures to obtain cyclic modulus and damping of geomaterials in Japan
M.Hatanaka

Panelist discussion: Effects of cement and density on the stiffness of an artificially cemented sand
D.W.Airey & J.T.Huang

Panelist discussion: Recent advances in the interpretation of bender element tests
G.Viggiani

Discussion
S.Yamashita

Discussion
M.D.Bolton, G.R.Desari & C.W.W.Ng

Discussion summary
D.C.F. Lo Presti

Measurement of shear deformation of geomaterials – Field tests
General report: Measurement of shear deformation of geomaterials – Field tests
K.Tani

Discussion summary
K.Tani

Modelling of shear deformation of geomaterials – Identification of material properties
General report: Modelling of shear deformation of geomaterials – Identification of material properties
T.B.S.Pradhan

Panelist discussion: The dependence of \( G_0 \) on stress state and history in cohesive soils
S.Rampello, F.Silvestri & G.Viggiani

Panelist discussion: Mechanical behaviour of intact rocks, discontinuities and rock masses
O.Aydan, T.Seiki, G.C.Jeong & N.Tokashiki
Modelling of shear deformation of geomaterials — Modelling of material properties

General report: Evaluation of material properties
D. Muir Wood

Panelist discussion: The modelling of crushable soils
A. F. L. Hyde

Panelist discussion: Microplane approach to modelling deformation of soils
P. C. Prat & A. Gens

Panelist discussion: Extension of Spatially Mobilized Plane (SMP) to frictional and cohesive materials
H. Matsuoka

Discussion
M. Mimura

Discussion on the effective stress law for soft rocks
T. Aoki

Discussion
T. Nakai

Discussion: The dissipated energy equation in relation to the critical state model
N. Yasufuku

Discussion: Deformation-strength properties of intermediate soils under triaxial conditions
K. Omine

Discussion summary
D. Muir Wood

Prediction, performance and design

General report: Prediction, performance and design
A. Gens

Discussion
Y. Honjo