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Kam-Tim Chau
Jidong Zhao *Editors*

Bifurcation and Degradation of Geomaterials in the New Millennium

Proceedings of the 10th International Workshop on Bifurcation and Degradation in Geomaterials

Springer

Springer Series in Geomechanics and Geoengineering

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Preface

Interests in localization and related instabilities in the field of geomechanics date back to the JMPS paper of Rudnicki and Rice (1975) "Conditions for the localization of deformation in pressure-sensitive dilatant materials". It models strain localization in rocks as material instability. Subsequently, strain localization in soils was considered as shear band by Vardoulakis et al. (1978) "Formation of shear bands in sand bodies as a bifurcation problem" in IJNAMG. Research interests in this area expanded considerably and resulted in the first international workshop on Localization of Soils organized in Karslrule, Germany, February 1988, and this international workshop became the first sequel to our current International Workshop on Bifurcation and Degradation in Geomaterials (IWBDG). This aroused so much enthusiasm and interest in the fundamental aspects of bifurcation theory to soils that the second workshop followed in Gdansk, Poland, September 1989. The topic was then extended to rock mechanics at the third international workshop in Aussois, France, September, 1993. In 1997, this international workshop series was expanded to include instabilities and degradations in geomaterials at the fourth workshop in Gifu, Japan, September 1997. Since then, the name of IWBDG was adopted and subsequent international workshops were held at Perth, Australia, November 1999 (fifth), at Minneapolis, USA, June 2002 (sixth), at Crete, Greece, June 2005 (seventh), at Lake Louise, Canada, May 2008 (eighth) and at Porquerolles, France, May 2011 (ninth). The tenth international workshop of this series continued this central theme of bifurcation and degradation of geomaterials, and was held in Hong Kong during May 28–30, 2014 (10th IWBDG) at the beautiful campus of the Hong Kong Polytechnic University.

The 10th IWBDG was attended by 66 participants representing 16 countries or regions, including Australia, Austria, Belgium, Canada, Chile, France, Greece, Hong Kong China, Iran, Japan, Mainland China, Norway, Poland, Sweden, UK and USA. A total of 55 presentations were delivered, covering three full days. Among them, 17 were registered as students. This proceedings published by Springer contains 54 peer reviewed full papers.

The workshop would not be possible without the help of qualified and diligent reviewers, and they include Mustafa Alsaleh, Ronaldo I. Borja, Jacques Desrues,

Zhiwei Gao, Ning Guo, Peijun Guo, Marte Gutierrez, Wenxiong Huang, Mingjing Jiang, Xia Li, Francois Nicot, Fusao Oka, Jacek Tejchman, Antoinette Tordesillas, Richard Wan, Gang Wang, Jeff Jianfeng Wang, Wei Wu, Zhenyu Yin, Jidong Zhao (in alphabetical order). Their helps are highly appreciated. The financial sponsors are Fong On Construction Limited (courtesy of Dr. James C.K. Lau, JP) and the Faculty of Construction and Environment, The Hong Kong Polytechnic University (through Conference Support Scheme). Non-financial sponsors include Geomechanics Committee, AMD of ASME, Elasticity Committee, EMI of ASCE, HKGES, Geotechnical Division of HKIE and TC103 Numerical Methods of ISSMGE. The clerical and logistics supports from the Department of Civil and Environmental Engineering are highly appreciated.

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