

Purdue Geotechnical Society Workshop Program

Friday April 21, 2017

East Faculty Lounge, Purdue Memorial Union, State Street, Purdue University, West Lafayette, IN

Climate Change and Geotechnical Engineering

7:30 a.m. Breakfast: coffee, juice, rolls, fruits, etc.

8:00 a.m. **Opening of Workshop** - Philippe Bourdeau, Purdue University

Welcome – Rao S. Govindaraju, Bowen Engineering Head of Civil Engineering and Christopher B. and Susan S. Burke Professor of Civil Engineering

MORNING SESSION

Moderator: *James Lambrechts, Wentworth Inst. of Tech.*; Coordinators: *Ganesh Vairavan & Anahita Modiriasari, Purdue*

8:15 a.m. **Keynote Lecture:**

CLIMATE CHANGE: MECHANISMS AND FUTURE IMPLICATIONS IN THE MIDWEST AND BEYOND

Jeffrey S. Dukes, Purdue Climate Change Research Center

9:00 a.m. **IMPACT OF CLIMATE CHANGE ON COASTAL PROTECTION AND RESILIENCE**

Timothy D. Stark & Jiauri Chen, University of Illinois at Urbana Champaign, Navid H. Jafari & Brian Harris, Louisiana State University

9:20 a.m. **PERFORMANCE OF GEOTECHNICAL STRUCTURES UNDER A CHANGING CLIMATE: QUANTITATIVE ASSESSMENT FOR EXTREME PRECIPITATION EVENTS**

Farshid Vahedifard, Mississippi State University

9:40 a.m. **DISPLACEMENT ANALYSIS OF WORLD ISLANDS' BREAKWATER**

Yazen Khasawneh, Geosyntec Consultants

10:00 a.m. **BREAK**

10:30 a.m. **POTENTIAL IMPACT OF CLIMATE CHANGE ON THE ESTIMATION OF RISK OF DAMS AND LEVEES**

Terry M. Sullivan, U.S. Army Corps of Engineers

10:50 a.m. **CHARACTERIZATION AND MODELING OF THE CHEMO-MECHANICS OF GEOMATERIALS ACROSS SCALES**

Mehmet Cil, Northwestern University

11:10 a.m. **ACUDE de NACA DAM FAILURE: INSIGHTS AND PROSPECTS ON RESILIENT STRUCTURE DESIGN**

Rodrigo Borela, Georgia Institute of Technology & Danielli de Melo, Purdue University

11:40 a.m. **GROUP PHOTO ON PMU STEPS**

11:50 a.m. **LUNCH** – PMU 118, Purdue Memorial Union

AFTERNOON SESSION

Moderator: *Michael Wigger, Earth Exploration, Inc.*; Coordinators: *Amy Getchell & Sudeep Roy, Purdue University*

1:00 p.m. **Keynote Lecture:**

CLIMATE CHANGE AND THE PUBLIC FORUM: COMMUNICATING GEOTECHNICAL ENGINEERING CONCEPTS IN A WORLD OF SUSPICION AND MISTRUST

John A. Mundell, Mundell & Associates, Inc.

1:45 p.m. **APPLICATION OF LIFE CYCLE ASSESSMENT TO GEOTECHNICAL AND GEOENVIRONMENTAL PROJECTS**

Krishna Reddy, University of Illinois at Chicago

2:05 p.m. **LANDFILL EMISSION CHARACTERISTICS OF HIGH GLOBAL WARMING POTENTIAL F-GASES**

Nazli Yesiller, California Polytechnic State University

2:25 p.m. **BREAK**

2:55 p.m. **BRINGING THE ENGINEERS BACK INTO THE BOARDROOMS: CONNECTING CLIMATE RISK TO FINANCIAL PERFORMANCE**

David Espinoza, Geosyntec CAT

3:15 p.m. **GEOMECHANICAL RISKS ASSOCIATED WITH DEEP CO₂ STORAGE**

Roman Makhnenko – University of Illinois at Urbana Champaign

3:35 p.m. **THE EFFECTS OF CLIMATE CHANGE ON GREAT SALT LAKE RAILROAD EMBANKMENT STABILITY**

James Lambrechts, Wentworth Institute of Technology

3:55 p.m. **WORKSHOP CLOSURE**