

# **Stability of Natural and Man-Made Slopes: Analyses, Shear Strengths, Testing, Stability Methods, and Stabilization**

**Dr. Timothy D. Stark**  
University of Illinois at Urbana Champaign

and

**Dr. Ning Lu**  
Colorado School of Mines

**Friday, October 14, 2016**  
University Hills Community Center  
1083 California Ave  
Irvine, California 92617



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Dr. Timothy D. Stark, P.E., D.GE, F.ASCE



Timothy D. Stark, P.E. is a Professor of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign and a registered Professional Engineer in and Louisiana. Dr. Stark has been conducting research and teaching on the static and seismic stability of natural and manmade slopes and earth structures for over twenty-five (25) years. He is currently researching fully softened and residual

shear strengths for slope stability analyses, three-dimensional slope stability analyses, and transient and unsaturated seepage analyses for stability analyses. Dr. Stark has received a number of awards for his research and teaching activities including: 2015 James M. Hoover Lecturer at Iowa State University; Thomas A. Middlebrooks Award from the American Society of Civil Engineers (ASCE), 2013 and 1998; R.S. Ladd D18 Standards Development Award, ASTM, 2014, 2011, and 2002; Associate Editor Award, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, 2012; Journal of Legal Affairs and Dispute Resolution in Engineering Scholarly, Paper, ASCE, 2011; R.M. Quigley Award from the Canadian Geotechnical Society, 2003, and Walter L. Huber Research Prize, ASCE, 1999.

Dr. Ning Lu, F.ASCE



Ning Lu is a Professor of Civil Engineering at Colorado School of Mines, and an internationally known expert on effective stresses in unsaturated porous media. His primary research interest is relating basic soil physical phenomena, e.g., fluid flow, chemical transport, heat transfer, stress, and deformation, to understand various engineering

problems, such as underground nuclear waste isolation, residential house foundation damage by expansive clays, and, most recently, precipitation-induced landslides. He has co-authored numerous papers and two textbooks titled "Unsaturated Soil Mechanics" (N. Lu and W.J. Likos, John Wiley and Sons, 2004) and "Hillslope Hydrology and Stability" (N. Lu and J.W. Godt, Cambridge University Press, 2012). He teaches regularly on mechanics and hydrology of variably saturated porous media. He also teaches vadose zone hydrology and landslides. Dr. Lu has received a number of awards for his research, teaching, and service activities including the Norman Medal and Croes Medal from the American Society of Civil Engineers (ASCE) in 2007 and 2010, respectively.

## COURSE SCHEDULE

- 8:30 – 8:45 Registration  
8:45 – 8:55 Introductions  
8:55 – 10:05 Critical Cross-Section and Failure Surface – T. Stark
- Examples and interpretation of slope inclinometers
  - Applicability of different types of failure surfaces
- 10:05 – 10:20 Break/Networking  
10:20 – 11:25 2D and 3D Stability Methods – T. Stark
- Static and seismic slope stability methods
  - Use of cohesion and stress dependent strength envelopes
- 11:25 – 12:15 Principle of Effective Stress in Unsaturated Soils – N. Lu  
12:15 – 1:00 Lunch/Networking  
1:00 – 1:35 Unsaturated Slope Stability Analyses for Hillslopes– N. Lu  
1:35 – 2:25 Selection and Types of Drained and Undrained Shear Strengths – T. Stark  
2:25 – 2:35 Break/Networking  
2:35 – 4:00 Slope Stability Case Histories – T. Stark
- Oso, Washington Landslide Analysis
  - Highway Embankment on Soft Soils
- 4:00 – 4:30 Summary and Open Discussion

## REGISTRATION

Course fee is \$100.00  
Students with current ID: \$40.00  
Checks payable to the "Los Angeles Geo-Institute Chapter" and mailed to:  
Reza Mortezaie  
Geo-Advantec  
457 West Allen Avenue, Suite 113  
San Dimas, CA 91773

Or Online at:

<http://lageoinstitute.com/register/>

Questions? Email David Albus at  
dalbus@albus-keefe.net