67th Annual Highway Geology Symposium (HGS 2016)

Better Highways Through Applied Geology

Colorado Springs, Colorado, USA
11 - 14 July 2016

ISBN: 978-1-5108-3198-8
Technical Sessions I – Young Authors

**Location: Colorado II**
Chris Ruppen, Moderator

9:00 AM – 9:15 AM
**Emergency Repair of a Failing MSE Wall Utilizing Hollow Bar Soil Nails and Compaction Grouting ......9**
Presenter: Justin Petersen

9:15 AM – 9:30 AM
**Claystone, Steep Slopes, and Water, Not Again! The SR 2018 West Smithfield Street Landslide Remediation, Allegheny County, PA .....151**
Presenter: Stephanie Chechak

9:30 AM – 9:45 AM
**Understanding Rockfall Behaviors Using Wireless Sensor Network System Through Laboratory Experiments .....232**
Presenter: Prapti Giri

9:45 AM – 10:00 AM
**Comparison of 2D and 3D Rockfall Modeling for Rockfall Mitigation Design .....274**
Presenter: Brett Arpin

10:00 AM – 10:30 AM
**Morning Coffee Break – Sponsored by Ameritech**
Location: Colorado I

Technical Sessions I – Young Authors cont.

**Location: Colorado II**
Chris Ruppen, Moderator

10:30 AM – 10:45 AM
**K-7 Highway Realignment in Cherokee Co. Kansas - the Past, Present and Future .....362**
Presenter: Kyle Halverson

10:45 AM – 11:00 AM
**Geologic Exploration for Ground Classification of the I-70 Veterans Memorial Tunnels .....378**
Presenter: Todd G Hansen and Samantha Sherwood

11:00 AM – 11:15 AM
**3D Monitoring of Rockfall Sources in Colorado .....398**
Presenter: Cole Christiansen

11:15 AM – 11:30 AM
**Glenwood Canyon Rockslide Emergency Response and Construction in a Major Interstate Corridor .....N/A**
Presenter: Nicole Oester

11:30 AM – 11:45 AM
**Use of Anchored Drilled Shafts to Stabilize a Landslide: Construction and Instrumentation .....21**
Presenter: David Vara

11:45 AM – 12:00 PM
**Roller Coaster Highways - The Implementation and Execution of Settlement Monitoring Program at Two Colorado Highway Projects .....289**
Presenter: JG McCall

12:00 PM – 1:15 PM
**Lunch**
Location: Mountain View Dining Room
Tuesday, July 12th cont.

Technical Sessions II – Slopes and a Sinkhole

**Location:** Colorado II

Barry Siel, Moderator

1:15 PM – 1:30 PM
**Umbrella Structures for Avalanche Protection Per Western North American Snow Conditions Designed according to the Swiss Guidelines** .....455
Presenter: Luca Bobbin

1:30 PM – 1:45 PM
**A Cost Effective Design for Stabilization of a 40-Year-Old Landslide: Construction and Instrumentation** .....189
Presenter: Khalid Mohamed

1:45 PM – 2:00 PM
**Rapid Response to Post Fire Debris Flow Event** .....216
Presenter: Mallory Jones

2:00 PM – 2:15 PM
**Nanos Cattle Pin Embankment Instability Investigation SH 99 in Osage Co. Oklahoma** .....471
Presenter: James Nevels

2:15 PM – 2:30 PM
**Plymouth Road over Plymouth Creek A Sinkhole that Stopped Traffic** .....438
Presenter: Sarah McInnes

2:30 PM – 2:45 PM
**Turkey Creek Stream Bank Stabilization, Mission, Kansas, July 2015** .....99
Presenter: Levi Sutton

2:45 PM – 3:15 PM
**Afternoon Break**

Technical Sessions III – Geological and Geotechnical Exploration

**Location:** Colorado II

Peter Ingraham, Moderator

3:15 PM – 3:30 PM
**Concerns about Siting an Aggregate Quarry in a Dolomite Reef Deposit, Central Indiana** .....141
Presenter: Terry West

3:30 PM – 3:45 PM
**Geotechnical Aspects of an Off-line Walkway Addition to the Route 28 Project** .....420
Presenter: Chris Ruppen

3:45 PM – 4:00 PM
**Electrical Resistivity in the Kansas Ozarks: US 166 Bridges in Cherokee County** .....1
Presenter: Neil Croxton

4:00 PM – 4:15 PM
**How not to Build on Karst - A Case History** .....41
Presenter: Joseph Fischer

4:15 PM – 4:30 PM
**Value Engineering the Sunbelt Rentals Equipment Yard Rehabilitation** .....491
Presenter: John C. Folts
Tuesday, July 12th cont.

4:30 PM – 4:45 PM
Utility Mapping Using Multichannel 3D GPR Array Technology .....84
Presenter: Manuel Celaya, PhD

4:45 PM – 5:00 PM
Overview of HGS Field Trip on July 13 .....552
Presenter: Jon White

6:00 PM
Optional Colorado Luau – Sponsored by BGC Engineering
Location: Resort Lakeside

Wednesday, July 13th

7:00 AM – 8:00 AM
Breakfast
Location: Mountain View Dining Room

Highway Geology Symposium Field Trip
8:00 AM
Meet on Mountain View Terrace for Area Geology Overview

8:15 AM – 4:00 PM
Field Trip
Lunch sponsored by GeoBrugg, afternoon beverages sponsored by Golder Associates
Buses load from Resort Lobby

5:30 PM – 6:30 PM
Highway Geology Symposium Social Hour – Sponsored by IDSNA
Location: Cheyenne Courtyard

Highway Geology Symposium Banquet Dinner
6:30 PM – 9:30 PM
Keynote Address – Colorado Roadside Extinctions
by Dr. James Hagadorn, Denver Museum of Nature & Science
Location: Grand Rivers Ballroom

Thursday, July 14th

6:30 AM – 7:45 AM
Breakfast
Location: Mountain View Dining Room

8:00 AM – 10:30 AM
Highway Geology Symposium Exhibit Hall OPEN
Exhibitors need to break down after morning coffee break
Thursday, July 14th cont.

Technical Sessions IV – Geohazard Management and Monitoring

Location: Colorado II
Beth Widmann, Moderator

7:45 AM – 8:00 AM
Remote Sensing Model - Drone flight over Waldo Canyon .....N/A
Presenter: Cole Christiansen and Beau Taylor

8:00 AM – 8:15 AM
Displacement Measurement of Slow Moving Landslides using Sub-mm LIDAR Scanning .....338
Presenter: Norbert Maerz

8:15 AM – 8:30 AM
An Introduction to NCDOT’s Performance-Based Geotechnical Asset Management Program .....319
Presenter: Jody Kuhne

8:30 AM – 8:45 AM
Probabilistic Geohazard Assessment: Accounting for Engineered Mitigation .....70
Presenter: Alex Strouth

8:45 AM – 9:00 AM
Utilization of a Geotechnical Asset Management Program - Lessons Learned from a Highway Improvement Project in Alaska .....522
Presenter: John Thornley

9:00 AM – 9:15 AM
Presenter: Ben Arndt

9:15 AM – 9:30 AM
The Contribution of Satellite and Terrestrial Radar to the Management of Geohazards .....N/A
Presenter: Alfredo Rocca

9:30 AM – 10:00 AM
Morning Coffee Break
Location: Colorado I
Technical Sessions V – Rockfall

Location: Colorado II
Ben Arndt, Moderator

10:00 AM – 10:15 AM
Single Rope Access.....413
Presenter: John Duffy

10:15 AM – 10:30 AM
D3 Rockfall Mitigation Project, Interstate 15, Helena to Great Falls, Montana.....118
Presenter: Benjamin George

10:30 AM – 10:45 AM
Logistics and Considerations Surrounding the Opening of Glenwood Canyon After a Major Rockfall Event.....502
Presenter: Cameron Lobato

10:45 AM – 11:00 AM
Rockfall Barrier Foundations and Challenges Associated with Estimating Design Basis Loads.....305
Presenter: Dave Scarpato

11:00 AM – 11:15 AM
Inner-City Rockfall Hazards - Systematic Investigations of Rock Slopes in the City of Hamilton Ontario.....50
Presenter: Gabriele Mellies

11:15 AM – 11:30 AM
Rockfall Hazard Assessment and Mitigation for the TH-53 Bridge over the Rouchleau Mine Pit near Virginia, Minnesota.....169
Presenter: John Turner

11:30 AM – 11:45 AM
Attenuator’s for Controlling Rockfall: First Results of a State-of-the-Art Full-Scale Testing Program.....534
Presenter: Tim Shevlin, PG

11:45 AM – 12:00 PM
Emergency Response to Rockfall on Oklahoma Interstate 35.....354
Presenter: Marty Woodard

12:00 PM – 12:15 PM
Closing Remarks
Ty Ortiz
Transportation Research Board Midyear Session 2016
Engineering Geology and Exploration and Classification of Earth Materials Committees

“Geological Modeling: Methods and Methodologies”
Monday, July 11, 2016 | Colorado II

The Transportation Research Board (TRB) Standing Committee on Geotechnical Site Characterization (AFP20) and the Standing Committee on Engineering Geology (AFP10), traditionally hold their midyear session during the Highway Geology Symposium. This year’s theme is “Geological Modeling: Methods and Methodologies”. The session will include four 30 minute invited presentations followed by a 30 to 45 minute open discussion on the state of practice in the transportation industry.

Agenda

1:00 pm to 1:30 pm
Alexandra Wayllace, PhD - Colorado School of Mines - “Infiltration-induced instability of an embankment along interstate highway near the Colorado continental divide” .....N/A

1:30 pm to 2:00 pm
Paolo Mazzanti, PhD – NHAZCA - “On the importance of displacement monitoring for the prediction of landslide time of failure” .....N/A

2:00 pm to 2:30 pm
Dave Gauthier, PhD - BGC Engineering – “Rock slope monitoring and rockfall prediction from LiDAR and photogrammetry: state of art” .....N/A

2:30 pm to 3:00 pm
Paco Gomez, PhD - University of Missouri – “Modeling implications from observations of rockfall and earth slope movements using ground-based interferometric RADAR” .....252

3:00 pm to 3:15 pm
BREAK

3:15 pm to 4:00 pm
Open Discussion

4:00 pm
Adjourn