SHIHUAI ZHANG

CONTACT INFORMATION

NO F51.1, Sonneggstrasse 5, 8092 Zürich, CH
zhangshi@ethz.ch shihuaizhang.xh1@gmail.com
+86-132-6148-5310 +41 779637437

RESEARCH INTERESTS

Experimental Rock Mechanics, Acoustic Emission, Discrete Element Method Simulation
Stress Variations near Faults, *in-situ* stress, Geomechanics, Stress Relaxation

EDUCATION

ETH Zurich, Switzerland 2019.4-present
Post-Doctoral, Department of Earth Sciences
» Advisor: Xiaodong Ma

University of Science and Technology Beijing, China 2013.8-2019.1
Ph.D., Civil Engineering
» Thesis: Study on the Strength and Deformability of Hard Brittle Sandstone
(*Experimentally investigated acoustic emission characteristics, constitutive relations, and 3D nonlinear strength criteria associated with the brittle failure in low-porosity sandstone under various stress states*)
» Advisor: Shunchuan Wu (Distinguished Professor of the Cheung Kong Scholars Programme)

University of Arizona, United States 2015.9 - 2016.3
Visiting Ph.D. , Department of Civil Engineering and Engineering Mechanics
» Research Topic: Acoustic Source Localization without Known Velocity Model
(*Performed experiments and DEM simulations to verify a kind of acoustic source localization method, which is independent of velocity model.*)
» Advisor: Tribikram Kundu

University of Science and Technology Beijing, China 2009.9- 2013.6
B.S. , Civil Engineering
» Thesis: Field and Discrete Element Method Analysis on the Slope Stability in Donglutian Open Pit Mine
(*Performed stability analysis on high and steep slopes in Donglutian Open Pit Mine, Pingshuo, China, based on physical and mechanical properties of rock cores from field and discrete element method.*)
» Advisor: Shunchuan Wu (Distinguished Professor of the Cheung Kong Scholars Programme)

JOURNAL PAPERS

1. **S. Zhang** , S.Wu, G. Zhang, Strength and deformability of a low-porosity sandstone under true triaxial compression conditions, *International Journal of Rock Mechanics and Mining Sciences*, 2020, 127: 104204. DOI: 10.1016/j.ijrmms.2019.104204
2. **S. Zhang** , S. Wu, K. Duan, Study on the Deformation and Strength Characteristics of Hard Rock under True Triaxial Stress State using Bonded-Particle Model, *Computers and Geomechanics*, 2019, 112: 1-6. DOI: 10.1016/j.compgeo.2019.04.005
3. **S. Zhang** , S.Wu, et al., Acoustic Emission Associated with Self-sustaining Failure in Low-porosity Sandstone under Uniaxial Compression, *Rock Mechanics and Rock Engineering*, 2019, 52: 2067-2085. DOI: 10.1007/s00603-018-1686-8.
4. S. Wu, **S. Zhang(Corresponding author)** , et al., A Generalized Nonlinear Failure Criterion for Frictional Materials, *Acta Geotechnica*, 2017, 12 (6): 1353-1371. DOI: 10.1007/s11440-017-0532-6.
5. **S. Zhang** , S. Wu, et al, Three-dimensional Evolution of Damage in Sandstone Brazilian Disc by the Concurrent Use of Active and Passive Ultrasonic Techniques, *Acta Geotechnica*, 2018, DOI: 10.1007/s11440-018-0737-3.
6. S. Wu, **S. Zhang(Corresponding author)** , et al., Three-dimensional Strength Estimation of Intact Rocks Using a Modified Hoek-Brown Criterion Based on a New Deviatoric Function, *International Journal of Rock Mechanics and Mining Sciences*, 2018, 107: 181-190. DOI: 10.1016/j.ijrmms.2018.04.050.
7. L. Xiong, S. Wu, **S. Zhang** , Mechanical Behavior of a Granite from Wuyi Mountain: Insights from Strain Based Approaches, *Rock mechanics and Rock Engineering*, 2018, DOI: 10.1007/s00603-018-1617-8.
8. S. Wu, L. Xiong, **S. Zhang** , Strength Reduction Method for Slope Stability Analysis Based on a Dual Factoring Strategy, *International Journal of Geomechanics*, 2018, 18 (10): 04018123. DOI: 10.1061/(ASCE)GM.1943-5622.0001249.

In Chinese:

9. **S. Zhang** , S. Wu, et al., Stress Wave Propagation Under Low Frequency Dynamic Loading and Simulation Method with Particle Flow Code, *Chinese Journal of Rock Mechanics and Engineering*, 2016, 35 (8): 1555-1568.
10. **S. Zhang** , S. Wu, et al., Study of True Triaxial Strength of Rock and Modified Method of Mohr-Coulomb Criterion Shape Function, *Chinese Journal of Rock Mechanics and Engineering*, 2016, 35 (Supp.1): 2608-2619.

11. S. Wu, G. Zhang, **S. Zhang** , et al., Numerical Simulation on Two-dimensional Acoustic Emission Source Location without Knowing the Velocity Profile, *Chinese Journal of Rock Mechanics and Engineering*, 2018, In press.
12. S. Wu, Z. Chen, **S. Zhang** , Microseismic Location Algorithm for Gently Inclined Strata and Its Numerical Verification,*Rock and Soil Mechanics* , 2018, 39 (1): 297-307.
13. S.Wu, R. Jiang, **S.Zhang** , et al., Application of a Modified Hoek-Brown Strength Criterion to the Borehole Stability Analysis, *Rock and Soil Mechanics*, 2019, In press.
14. S.Wu, M. Zhang, **S.Zhang** , et al., Study on the Determination Method of the Instantaneous Mohr-Coulomb Strength Parameters of a Modified Hoek-Brown Failure Criterion, *Rock and Soil Mechanics*, 2019, In press.

CONFERENCE PAPERS

1. **S. Zhang** , S.Wu, et al., Three-dimensional Strength Characteristics of Zigong Sandstone Under True Triaxial Stresses, 10th Asian Rock Mechanics Symposium, Singapore, 2018.
2. S. Wu, G. Zhang, **S. Zhang** , et al., Experimental Research on Two-dimensional Acoustic Emission Source Location without Knowing the Velocity Profile, China Rock 2018, Beijing, China, 2018.
3. S. Wu, P. Guo, **S. Zhang** , et al., Study on Thermal Damage of Granite Based on Brazilian Splitting Test, China Rock 2018, Beijing, China, 2018.

GRANTED PATENTS

1. A Fast Location Method for Microseismic Source Based on Time Difference Database, 2016.06.21.
2. Dynamic Disaster Warning System Based on the Auxiliary Hole Monitoring of Fracturing in Surrounding Rock of Roadway, 2016.04.26.

AWARDS & SCHOLARSHIPS

1. Honored Graduates of Beijing, 2019
2. Excellent Doctoral Dissertation of USTB (graded as "AAAA" by four anonymous reviewers), 2019
3. Academic Star of School of Civil and Resource Engineering, 2017/2018
4. National Scholarship (by Ministry of Education of P.R.China), 2016
5. Merit Student Scholarship, 2014-2016
6. Honored Graduates of USTB, 2013
7. Excellence Scholarship, 2012
8. DELONG Special Scholarship, 2011
9. People's Scholarship for Undergraduates, 2010

FUNDING

1. National Natural Science Foundation of China (NNSFC) programme grant, "Research on the macro/mesoscopic characterization of mechanical behavior of hard brittle rock and the mechanism of strong unloading-temperature coupling of surrounding rock damage", (51774020), Major participant (ranking the 3rd), 2018.01-2021.12
2. Innovative Talents Cultivation Grant for International Conferences, 2018.10-2018.12
3. Innovative Talents Cultivation Grant for Visiting Ph.D., 2015.09-2016.03