

Athma R. Bhandari, PhD

Professional Summary

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Professional Preparation

Academic Background

Ph.D. Civil Engineering, University of Southampton, U.K., 2009
M.E. Civil Engineering, The University of Tokyo, Japan, 2004
B.E. Civil Engineering (with distinction), Tribhuvan University, Kathmandu, Nepal, 2000

Professional Appointments

Present Position: Research Associate, Institute for Geophysics, The University of Texas at Austin (September 2015 – Present).
Research Associate, Bureau of Economic Geology, The University of Texas at Austin (February 2014 – August 2015).
Postdoctoral Fellow, Bureau of Economic Geology, The University of Texas at Austin (April 2012 - February 2014).
Postdoctoral Research Fellow in Geomechanics, Faculty of Engineering and the Environment, University of Southampton, UK (2010 - 2012).
Knowledge Transfer Secondments (KTS) Postdoctoral Research Fellow in Geomechanics, Faculty of Engineering and the Environment, University of Southampton, UK (2009 - 2010).
Ph.D. Researcher for the EPSRC project Micro-Mechanical Behaviour of Locked Sands, Faculty of Engineering and the Environment, University of Southampton, UK (2005 - 2009).
Lecturer, Tribhuvan University, Kathmandu, Nepal (2004 - 2005).
Civil Engineer, Nepal Electricity Authority, Kathmandu, Nepal (2001 - 2002).
Lecturer, Tribhuvan University, Kathmandu, Nepal (2000 - 2001).

Thesis

Experimental and numerical studies of strain localization characteristics in rate-dependent solids.

Dissertation

The mechanics of an unbonded locked sand at low effective stresses

Areas of Expertise

Areas of Expertise

Measurement of mass transport in gas shales
Geotechnical laboratory testing

Digital-image-based deformation measurements
Microstructure characterization of soils and rocks
Constitutive modeling of geomaterials
Numerical analysis in geomechanics

Awards

Awards and Honorary Societies

Knowledge Transfer Secondments (KTS) Fellowship, EPSRC, 2009 - 2010
Overseas Research Students Award Scheme (ORSAS) Award, 2006 - 2009
Research Scholarship at the University of Southampton, 2005 - 2009
ADB—Japan Scholarship Program Scholarship, 2002 – 2004

Service

Proposal Review Panels Participation

Transport in Porous Media (Article), 2016
Geotechnique (Article), 2016
Canadian Geotechnical Journal (Article), 2015, 2016
Applied Physics & Engineering Journal, Zhejiang University- Science A (Article), 2014

Activities of a Professional Nature

Professional Societies

American Geophysical Union (AGU), 2012 – present
American Rock Mechanics Association (ARMA), 2016 - present
British Geotechnical Association (BGA), 2005 - 2015
International Society for Rock Mechanics (ISRM), 2005 - 2015
International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE), 2005 - 2015

Publications

Peer Reviewed Journal Articles

Cronin, M. B., Flemings, P. B., Bhandari, A. R., 2016, Dual-permeability microstratigraphy in the Barnett Shale: Journal of Petroleum Science and Engineering, v. 142, p. 119-128, doi:10.1016/j.petrol.2016.02.003.

Bhandari, A. R., Flemings, P. B., Polito, P. J., Cronin, M. B., and Bryant, S. L., 2015, Anisotropy and Stress Dependence of Permeability in the Barnett Shale: Transport in Porous Media, v. 108, no. 2, p. 393-411, <http://doi.org/10.1007/s11242-015-0482-0>.

Le Pen, L, Bhandari, A. R., and Powrie, W., 2014, Sleeper end resistance of ballasted railway tracks: Journal of Geotechnical and Geoenvironmental Engineering, v. 140, no. 5, 14 p., [http://doi.org/10.1061/\(ASCE\)GT.1943-5606.0001088](http://doi.org/10.1061/(ASCE)GT.1943-5606.0001088).

Bhandari, A. R., and Powrie, W., 2013, Behavior of an MBT waste in monotonic triaxial shear tests: Waste Management, v. 33, p. 881–891, doi: <http://dx.doi.org/10.1016/j.wasman.2012.11.009>.

Bhandari, A. R., and Powrie, W., 2013, Strength and deformation characteristics of a locked sand at low effective stresses: Granular Matter, v. 15, p. 543-556, doi: 10.1007/s10035-013-0426-8.

Bhandari, A. R., Powrie, W., and Harkness, R. M., 2012, A digital image-based soil deformation measurement system for triaxial tests: Geotechnical Testing Journal, v. 35, no. 2, p. 209–226 doi:10.1520/GTJ103821.

Bhandari, A. R., and Inoue, J., 2005, Experimental study of strain rate effects in strain localization characteristics of soft rocks: *Soils and Foundations (Japanese Geotechnical Society, Japan.)*, v. 45, no. 1, p. 125–140.

Bhandari, A. R., and Inoue, J., 2005, Strain localization in soft rock—a typical rate dependent solid: experimental and numerical studies: *International Journal of Analytical and Numerical Methods in Geomechanics*, v. 29, p. 1087–1107.

Peer Reviewed Journal Articles (in preparation)

Bhandari, A. R. et al., Stress-dependent In-situ Gas Permeability in the Eagle Ford Shale

Bhandari, A. R. et al., Effective stress law for permeability in low permeability mudrocks

Non Peer Reviewed Articles

Bhandari, A. R., and Powrie, W., 2011, Behaviour of an MBT waste in triaxial tests, in *Proceedings of the Fourth International Workshop Hydro-Physico-Mechanics of Landfills, Santander, Spain, April 27–28, 4 p.*, CD-ROM.

Bhandari, A. R., and Inoue, J., 2004, Experimental observations of strain localization in soft rocks at different strain rates, in *Proceedings of Sixth International Summer Symposium, JSCE, Saitama, Japan, July 31, p. 249–252.*

Contract Reports

Bhandari, A. R., Polito, P. J., and Flemings, P. B., 2016, Comprehensive Report on the Measurements of Porosity and Permeability in Eagle Ford, Marcellus and Barnett Shale Samples : The University of Texas at Austin, report prepared for Shell Oil.

Bhandari, A. R., Jiang, C., Polito, P. J., Flemings, P. B., Bryant, S. L., and Daigle, H., 2015, Mass Transport in Gas Shales: The University of Texas at Austin, report prepared for Shell Oil.

Bhandari, A. R., Polito, P. J., Flemings, P. B., and Bryant, S. L., 2013, Transient Pulse Decay and Steady-State Permeability Measurements on Shell Samples: The University of Texas at Austin, report prepared for Shell Oil.

Bhandari, A. R., Smethurst, J. A., and Powrie, W., 2011, Ground Improvement: FLAC3D analyses: University of Southampton, Faculty of Engineering and the Environment, report prepared for Bryne Lobby Partners Ltd.

Published Abstracts

Bhandari, A. R., Polito, P. J., Flemings, P. B., and Ko, L., 2016, In-situ stress measurement of Eagle Ford shale matrix permeability (abs.), in BEG MRSL 2016 meeting, March 21–24.

Bhandari, A. R., Polito, P. J., and Flemings, P. B., 2015, Measurements of matrix permeability (under in-situ stress condition) and porosity in Eagle Ford cores (abs.), in BEG MRSL 2015 meeting, April 13–17.

Bhandari, A. R., Polito, P. J., Flemings, P. B., and Bryant, S. L., 2014, Creep and hysteresis effects on the Marcellus shale matrix permeability behavior (abs.), in Fall Meeting, AGU, San Francisco, California, December 15–19, Abstract H11H-1002.

Bhandari, A. R., Cronin, M. B., Polito, P. J., Flemings, P. B., and Bryant, S. L., 2013, Mass Transport Properties in the Matrix of the Barnett Shale (abs.), in Fall Meeting, AGU, San Francisco, California, December 9–13, Abstract MR11A-2201.

Bhandari, A. R., Reece, J. S., Cronin, M. B., Flemings, P. B., and Polito, P. J., 2012, Transient pressure-pulse decay permeability measurements in the Barnett shale (abs.), in Fall Meeting, AGU, San Francisco, California, December 3–7, Abstract MR33B-2462.

Powrie, W., Bhandari, A. R., and Harkness, R. M., 2008, Localisation of deformation in a naturally locked sand (abs.), in 19th ALERT Workshop, Aussois, France, October 6–8.