

**General:**

Dr. Zahid Hossain is an Associate Professor of Civil Engineering at Arkansas State University (A-State). He has over ten years experience in teaching and scholastic activities with an emphasis in the development and characterization of sustainable materials for engineering applications through fundamental science approaches. Further, he has conducted applied research in developing novel concrete and asphalt materials using recycling and nano-science technologies. Prior to joining A-State, Dr. Hossain worked as a Post-doctoral Research Associate at the University of Oklahoma (OU). Dr. Hossain has authored 55 peer-reviewed journal articles, and 50 referred conference papers, and served in different capacities (member, reviewer, editor, etc.) of several academies, professional journals, and scientific boards. Dr. Hossain received multiple prestigious awards that included 2014 Ralph E. Powe Jr. Faculty Enhancement Award from Oak Ridge Associated Universities (ORAU), 2013 Faculty Award for Scholarship from Arkansas State University (A-State), and 2012 University Transportation Center (UTC) Award from the US Department of Transportation (USDOT) for his outstanding contributions in transportation research, professional service and academic excellence. Dr. Hossain is Professional Engineering in the state of Arkansas.

**Teaching Specialties and Interests:**

Transportation Engineering, Construction Materials, Sustainable Engineering, Pavement Analysis and Design, Advanced Civil Engineering Materials, Engineering Mechanics, Geotechnical Engineering, Foundation Engineering, and Technical Communication.

**Research Specialties and Interests:**

Construction Materials, Material Sustainability, Design and Construction, Asphalt and Concrete Technology, Traffic Safety and Simulation, Constitutive Modeling, Molecular Dynamics Simulation, Recycling Technology, Data Mining and Data Warehousing, Geographic Information System, Lean Construction, Value Engineering, and Nanotechnology.

**Education:**

Doctor of Philosophy in Civil Engineering, The University of Oklahoma, Norman  
Master of Science in Computer Science, The University of Oklahoma, Norman  
Master of Science in Civil Engineering, The University of Oklahoma, Norman  
Bachelor of Science in Civil Engineering, Khulna Univ. of Eng. & Tech, Bangladesh

**Teaching/Research Positions:**

Associate Professor of Civil Engineering, Arkansas State University	05/2017-Present
Assistant Professor of Civil Engineering, Arkansas State University	10/2012-05/2017
Adjunct Faculty of Civil Engineering, Univ. of Arkansas, Fayetteville	2015-Present
Adjunct Faculty of Civil Engineering, Univ. of Oklahoma, Norman	2014-Present
Post-doctoral Research Associate, Univ. of Oklahoma, Norman	05/2011 – 09/2012
Graduate Research & Teaching Assistant, Univ. of Oklahoma, Norman	06/2008 -05/2011
Graduate Research & Teaching Assistant, Univ. of Oklahoma, Norman	08/1996 – 05/2000
Instructor, Khulna University of Eng. & Technology, Bangladesh	1995 - 1996

**Professional private industry positions:**

Senior Application Developer, Fidelity Info. Services, Tulsa, OK	2005 - 2011
Application Developer-II, Fidelity Information Services, Tulsa, OK	2002 - 2005

Application Developer-I, Alltel Corporation, Atlanta, GA 2000 - 2002  
Materials Engineer, Consultancy Research & Testing, Bangladesh 1995 - 1996

### **Courses Taught**

ENGR 2411 Mechanics of Materials Lab, Spring 2015-2017, Fall 2015-2017  
CE 3223 Civil Engineering Materials, Fall 2013, 2014, 2015, 2016, 2017  
CE 429V Transportation Engineering, Spring 2013, 2014  
CE 4223 Transportation Engineering II, Fall 2015, 2016  
CE 5293 Advanced CE Materials, Spring 2015, Fall 2016, 2017  
ENGR 4463 Senior Design I (Group Supervision), Fall 2014, Spring 2016, 2017  
ENGR 4482 Senior Design II (Group Supervision), Spring 2015, Fall 2016, 2017  
ENGR 6163 Pavement Analysis and Design, Spring 2014, 2016, 2017  
ENGR 6053 Sustainable Engineering, Fall 2014, 2015  
ENGR 6693 Engineering Research, Fall 2016, Spring 2017, Summer 2017  
ENGR 629V Special Topics in Engineering, Summer 2014, 2015, 2016, 2017  
ENGR 689V Thesis

### **Senior Design and Thesis Supervision**

#### *Undergraduate Projects*

1. Dylan Warner, Eric Zuniga, Garrett Gautreau, and Hassan Al-Mosalli, *Renovation of Structural Laboratory*, Senior Design I & II, Spring 2017-Fall 2017
2. Garrett Dunnam, Jessica Marks, Joshua Perry, and Wejdan Al-Shehab, *Subdivision Development*, Senior Design I & II, Spring 2016-Fall 2016
3. Adam Pankey, Alicia Kiech, Rashed Bin Daris, and Travis Brooks, *Jonesboro North-South Connector Study*, Senior Design- I & II, Fall 2014-Spring, 2015.

#### *Graduate Theses*

1. Tariq Morshed, *Mechanistic Properties of Nano-Filler Modified Concrete* M.Sc. Thesis., Spring 2019 (Expected)
2. Bryce Blevins, *Molecular Dynamics Simulation of Materials' Properties*, M.Sc. Thesis, Fall 2018 (Expected)
3. Sumon Roy, *Prediction of Moisture Damage in Asphalts*, M.Sc. Thesis, Fall 2018 (Expected)
4. Md Shahriar Alam, *Chemical Variations and Engineering Implications of Modified Asphalt Binders*, M.Sc. Thesis, Summer, 2017
5. Mohammad Badrul Ahsan, *Performance evaluation of Rice Husk Ash (RHA) Modified Concrete*, M.Sc. Thesis, Summer, 2017
6. Istiaque Mahmud, *Performance evaluation of Polyphosphoric Acid Modified Asphalt Binders*, M.Sc. Thesis, Fall 2016
7. AM Feroze Rashid, *Multiscale Mechanistic Characterization of Reclaimed Asphalt Pavement*, M.Sc. Thesis, Fall, 2016
8. Mohammed Ziaur Rahaman, *Elastic and Creep Recovery Behavior of Reclaimed Asphalt Modified Asphalt Binders* M.Sc. Thesis, Summer, 2016
9. Shu Yang, *Fracture Resistance in Asphalt Concrete,* " Member (External), Ph.D. Dissertation, Ph.D. Thesis, University of Arkansas at Fayetteville (External), Ph.D. Thesis, Spring 2016.
10. Nazmul Chowdhury, *Root Causes Of Premature Pavement Failures of Arkansas Interstate System*, M.Sc. Thesis, Summer, 2015
11. Biswajit Bairgi, *Viability Assessment of the Use of Ground Tire Rubber in Asphalt Pavements*, M.Sc. Thesis, Summer, 2015

12. Debaroti Ghosh, *Characterization of Oklahoma Certified Binders Using Multiple Stress Creep Recovery Method*, University of Oklahoma (External), M.Sc. Thesis, Summer, 2014.

### **Major External Research Sponsors and Projects:**

#### *At Arkansas State University*

- Transportation Consortium of South-Central States (Tran-SET), *US Department of Transportation*, Principal Investigator (A-State), November 1, 2016-October 31, 2021, \$1,390,000.
- Performance of Asphalts Modified with Polyphosphoric Acid, Principal Investigator, *Arkansas Department of Transportation (ARDOT)*, Principal Investigator, Nov 1, 2015-June 30, 2017, \$213,208.
- Acquisition of an Atomic Force Microscope (AFM) for Research to Evaluate Nano-scale Properties of Materials, *National Science Foundation (NSF)*, June 1, 2014-May 31, 2017, Principal Investigator, \$272,360.
- Characterization of Asphalt Binders Exposed to Extreme Temperatures Through Simple and Effective Test Methods, *Sothern Plains Transportation Center (SPTC)*, Co- Principal Investigator, October 1, 2014-May 31, 2017, \$191,473.
- Resistance of Asphalt Mixes With Recycled Materials to Withstand Extreme Temperatures, *Sothern Plains Transportation Center (SPTC)*, Co- Principal Investigator, October 1, 2014-January 1, 2017, \$191,473.
- Evaluating Performance of Asphalt Pavement Based on Data Collected During IRP, *Arkansas Department of Transportation (ARDOT)*, Co-Principal Investigator, July, 2013-June, 2015, \$102,443.
- Multiscale Characterization of Asphalt Binders Modified with Plant Baghouse and Bio-based Wastes, *Oak Ridge Associated National Universities (ORAU)*, Principal Investigator, July 1, 2014-June 30, 2015, \$10,000.
- Interfacial Properties of Carbon Nanotubes and Polymer, *National Aeronautics and Space Administration (NASA)*, Principal Investigator, July, 2013-June, 2014, \$6,990.
- Sustainable Utilization of Scrapped Automobile Tires, *Arkansas Department of Environmental Quality (ADEQ)*, Principal Investigator, April, 2013- December, 2013, \$1,000.

#### *At the University of Oklahoma, Norman*

- Creep Compliance and Percent Recovery of Oklahoma Certified Binders Using The Multiple Stress Creep Recovery (MSCR) Method, *Oklahoma Department of Transportation (ODOT)*, July 2012-June 2014, Principal Investigator, \$217,603.
- Implementation of MEPDG for HMA Pavements with RAP in Oklahoma, *Oklahoma Transportation Center (OkTC)*, July 2010-June 2012, Co-Principal Investigator, February 2010-Janurary 2012, \$243,224.
- Test Methods For Use of Recycled Asphalt Pavement in Asphalt Mixes, *Oklahoma Department of Transportation (ODOT)*, July 2009-June 2011, Co-Principal Investigator, \$189,377.

### **Synergistic Activities:**

- Introduced concepts of sustainability in undergraduate level Transportation Engineering and Civil Engineering Material courses at Arkansas State University.
- Introduced two new graduate level courses (Pavement Analysis and Design and Sustainable Engineering) at Arkansas State University.

- Served as members of three Transportation Research Board Scientific Committees (AFK30: Nonaspahl Components of Asphalt Mixes, AFP70: Characteristics of Mineral Aggregates, and AFK40: Characteristics of Asphalt-Aggregate Combinations to Meet Surface Requirements) of the National Academy of Sciences, 2013-present.
- Served as an editor for ASCE Geotechnical Special Publication, on Sustainable Civil Infrastructures: Innovative Technologies and Materials Conference to be held in Hubei, China in July 2014.
- Served as a host and judge at Create@ASTATE and Science Fair contests at ASU, 2012-present
- Served as Vice President and Member of Pre-Engineering and STEM Academy at Jonesboro High School, Arkansas; 2013-present.
- Served as a technical committee member of 2013 International Road Federation Conference in Riyadh, Saudi Arabia, November, 2013.

#### **Professional Service and Activities:**

- Editor, 2018 GeoChina, Civil Infrastructures Confronting Severe Weathers and Climate Changes: From Failure to Sustainability, July 23-25, 2018, HangZhou, China
- Editor, Geotechnical Special Publication (GSP) on Design, Analysis and Asphalt Material Characterization for Road and Airfield Pavements, 2016
- Reviewer, Journal of Materials in Civil Engineering, 2012- present
- Reviewer, Journal Construction and Building Materials, 2013-present
- Reviewer, Transportation Research Board (TRB), 2010-present
- Reviewer, International Journal of Pavement Engineering (IJPE), 2009-present
- Reviewer, Journal of Performance of Constructed Facilities (JPCF), 2009-present
- Reviewer, International Journal of Testing and Evaluation (JTE), 2010-present
- Reviewer, International Journal of Pavement Research and Technology (IJPRT), 2008-present
- Reviewer, Int. Conf. on Civil Engineering and Sustainable Development (ICCESD), Bangladesh, 2012
- Reviewer, Geo-Frontiers Conference on Advances in Geotechnical Eng., 2011, Dallas, TX.
- Reviewer, GeoHunan International Conference II: 2011, Hunan Province, China.
- Reviewer, Inaugural Int. Conf. of the Eng. Mechanics Institute, 2008. Minneapolis, MN.
- Reviewer, ASCE Geotechnical Special Pub. (GSP), No. 184, Pav. & Mat.: Modeling, Testing, and Performance, 2008.

#### **Selected Journal or Juried Conference Publications:**

1. **Hossain, Z.**, Rashid, F., and Roy, S. (2018). "Multiscale Evaluation of Rejuvenated Asphalt Binders With a High RAP Content," Under Review, in the 2018 Transportation Research Board Annual Meeting, Washington, D.C.
2. Alam, S., **Hossain, Z.**, and Baumgardner, G. (2018). "Linking Chemical Compositions and Rheological Properties of Asphalt Binders," Under Review, in the 2018 Transportation Research Board Annual Meeting, Washington, D.C.
3. Ahsan, M. B., and **Hossain, Z.**, (2018). "Study of Potential Use Of Rice Husk Ash (RHA) as a Supplementary Cementitious Material In Concrete Industry," Under Review, in the 2018 Transportation Research Board Annual Meeting, Washington, D.C.

4. Ali, S., Ghabchi, R., Rani, S., Zaman, M., and **Hossain, Z.** (2018). "Effect of RAP on Rutting and Moisture-Induced Damage Potential of Asphalt Binders and Mixes," Under Review, in the 2018 Transportation Research Board Annual Meeting, Washington, D.C.
5. Mahmud, I., **Hossain, Z.**, and Baumgardner, G. (2017). "Evaluation of Rheological Performance And Moisture Susceptibility of Polyphosphoric Acid Modified Asphalt Binders," International Journal of Road Materials and Pavement Design, Under Review, 26 pgs.
6. **Hossain, Z.**, Chowdhury, N., and Braham, A. (2017). "Forensic Evaluation of Premature Pavement Failures in Arkansas," International Journal of Performance of Constructed Facilities, Under Review, 27 pgs.
7. Rahaman, M., Z., **Hossain, Z.**, and Zaman, M. (2017). "Non-Recoverable Compliance and Recovery Behavior of Polymer-Modified and Reclaimed Asphalt Pavement (RAP)-Modified Binders in Arkansas," ASTM Journal of Testing and Evaluation, Under Review, 42 pgs.
8. **Hossain, Z.**, Bairgi, B., Zaman, M., Bulut, R., and Sumpter, B. (2017). "Evaluation of Stripping Resistance of Organoclay-modified Asphalt Binder and Aggregate Systems Using an Optical Contact Angle Analyzer," International Journal of Transportation Geotechnics, Under Review, 26 pgs.
9. **Hossain, Z.**, Bairgi, B., Zaman, M., and O'Rear, E. (2017). "Viability Assessment of the Use of Ground Tire Rubber (GTR) as a Modifier in Asphalt Binders," International Journal of Pavement Engineering, Under Review, 26 pgs.
10. Braham, A., Aschenbrener, T., and **Hossain, Z.** (2017). "Forensic Investigation of Ten Asphalt Pavements with Varying Performance in Arkansas," Journal of Pavement Engineering, Under Review, 28 pgs.
11. Rashid, F., **Hossain, Z.**, and Bhasin, A. (2017). "Investigation of Nanomechanistic Properties of Reclaimed Asphalt Pavement Modified Asphalt Binders by Using an Atomic Force Microscope," In Press, International Journal of Pavement Engineering, 19 pgs.
12. Alam, S., and **Hossain, Z.** (2017). Changes in Fractional Compositions of PPA and SBS Modified Asphalt Binders. Journal of Construction and Building Materials, No. 152, 2017, pp. 386-393.
13. Ahsan M. B., and Hossain Z. (2017). Use of Rice Husk Ash (RHA) as a Sustainable Cementitious Material for Concrete Construction. In: Struble L., Tebaldi G. (eds) Materials for Sustainable Infrastructure. GeoMEast 2017. Sustainable Civil Infrastructures. Springer, pp. 197-210.
14. Rashid, F., **Hossain, Z.**, and Bhasin, A. (2017). "Investigation of Nanomechanistic Properties of Reclaimed Asphalt Pavement Modified Asphalt Binders by Using an Atomic Force Microscope," *Transportation Research Board (TRB)*, Compendium of Papers, Volume: 96, January 8-12, 2017, Washington D.C.
15. Rahaman, M., **Hossain, Z.**, and Zaman, M. (2017). "Non-recoverable Compliance and Recovery Behavior of Polymer-modified and Reclaimed Asphalt Pavement-blended Binders in Arkansas," *Transportation Research Board (TRB)*, Compendium of Papers, Volume: 96, January 8-12, 2017, Washington D.C.
16. Rashid, F., and **Hossain, Z.** (2016). "Morphological and Nanomechanical Analyses of Ground Tire Rubber Modified Asphalts," ASCE Geo-China 2016 on Innovative Technologies for Severe Weather and Climate Change, July 25-27, 2016, Shandong, China. pp. 1-8. doi: 10.1061/9780784480113.001
17. **Hossain, Z.**, Rashid, F., Mahmud, I., and Rahaman, M. Z. (2016). "Morphological and Nanomechanical Characterization of Industrial and Agricultural Waste Modified Asphalt Binders," In Production, International J. of Geomechanics, August, 2016.

18. **Hossain, Z.**, Bairgi, B., Zaman, M., Bulut, R., and Sumpter, B. (2016) "Evaluation of Static Contact Angles and Moisture Resistance of Organoclay-modified Asphalt Binders," the Transportation Research Board 95th Annual Meeting, Washington D.C., 22 pgs. January 10-14, 2016
19. Ghabchi, R., Singh, D., Zaman, M., and **Hossain, Z.** (2016). "Micro-Structural Analysis of Moisture-Induced Damage Potential of Asphalt Mixes Containing RAP, ASTM J. of Testing and Evaluation, 44 (1), January 2016.
20. Ghabchi, R., Singh, D., Zaman, M., and **Hossain, Z.** (2016). "Laboratory characterization of asphalt mixes containing RAP and RAS," Taylor and Francis, International Journal of Pavement Engineering, Volume 17, Issue 9, pp. 829-846, 2016.
21. **Hossain, Z.**, Ghosh, D., Zaman, M., and Hobson, K. (2016). "Use of the Multiple Stress Creep Recovery (MSCR) Test Method to Characterize Polymer-Modified Asphalt Binders," ASTM Journal of Testing and Evaluation, Volume 44, No. 1, pp. 507-520, 2016.
22. **Hossain, Z.**, Zaman, M., Hawa, T., Saha, M. (2015). "Evaluation of Moisture Susceptibility of Nanoclay-Modified Asphalt Binders through the Surface Science Approach," Journal of Materials in Civil Engineering, Volume 27, Issue 10. pp. 10-18.
23. **Hossain, Z.**, Bairgi, B., and Belshe, M., Investigation of moisture damage resistance of GTR-modified asphalt binder by static contact angle measurements, ASCE Journal of Construction and Building Materials, Volume 95, pp. 45-53, October 2015.
24. Hossain, Z., Zaman, M., Hawa, T., Saha, M. Evaluation of Moisture Susceptibility and Healing Properties of Nanoclay Modified Asphalt Binders Through Surface Science Approach, ASCE Journal of Materials in Civil Engineering, volume 27, issue 10, October 2015.
25. Yang, S., Braham, A., Chowdhury, N., and **Hossain, Z.** Linking the Field and Lab Performance of Interstate Pavements. International Symposium on Systematic Approaches to Environmental Sustainability in Transportation, pp 19-27, July, 2015.
26. Bairgi, B., **Hossain, Z.**, and Hendrix, R. Investigation of Rheological Properties of Asphalt Rubber Toward Sustainable Use of Scrap Tires, *International Foundations Congress and Equipment Expo (IFCEE)*, March 17 - 21, 2015, San Antonio, Texas, pp. 359-368.
27. Chowdhury, N., **Hossain, Z.**, Braham, A., and Yang, S., A Framework for Premature Pavement Distress Evaluation, *International Foundations Congress and Equipment Expo (IFCEE)*, March 17 - 21, 2015 San Antonio, Texas, pp. 2492-2501.
28. **Hossain, Z.**, Zaman, M., Hawa, T., and Saha, M. Evaluation of Moisture Susceptibility and Healing Properties of Nanoclay-modified Asphalt Binders, *International Foundations Congress and Equipment Expo (IFCEE)*, March 17 - 21, 2015 San Antonio, Texas, pp. 339-348.
29. **Hossain, Z.**, Bairgi, B., and Belshe, M., Evaluation of Moisture Susceptibility of Ground Tire Rubber (GTR) Modified Asphalt Binder by Sessile Drop Method, *Transportation Research Board (TRB) Compendium*, Volume: 94<sup>th</sup>, Number: N/A, January, 2015, 19 pages.
30. **Hossain, Z.**, Zaman, M., Ghosh, D., and Hobson, K., Guidelines for Implementing the Multiple Stress Creep Recovery (MSCR) Test Method, *Transportation Research Board (TRB) Compendium*, Volume: 94<sup>th</sup>, Number: N/A, January, 2015, 24 pages.
31. Solanki, P., Zaman, M., Adje, D., and **Hossain, Z.** , Effect of Recycled Asphalt Pavement on Thermal Cracking Resistance of Hot Mix Asphalt, *ASCE International Journal of Geomechanics (IJOG)*, Volume: 15, Number: 5, October, 2015.

32. Diab, A., You, Z., **Hossain, Z.**, and Zaman, M., Moisture Susceptibility Evaluation of Nano-sized Hydrated Lime-Modified Asphalt-Aggregate Systems Based on Surface Free Energy Concept, *Journal of Transportation Research Board*, Volume 2446, 2015, pp 52-59.
33. **Hossain, Z.**, Ghosh, D., and Zaman, M. “Implementation of the Multiple Stress Creep Recovery (MSCR) Test Method to Characterize Polymer-Modified Asphalt Binders for Oklahoma Conditions,” Under Review, *ASTM Journal of Testing and Evaluation (JTE)*, Submitted in February 2014, Revised and Resubmitted in August, 2014.
34. **Hossain, Z.**, Zaman, M., Saha, M., and Hawa, T., Evaluation of Moisture Susceptibility of Nanoclay-Modified Asphalt Binders, *ASCE Geotechnical Special Publication (GSP)*, Application of Nanotechnology in Pavements, Geological Disasters, and Foundation Settlement Control Technology: Volume: Geo-Hubei 2014, No. GSP 244, July, 2014, pp. 1-8.
35. **Hossain, Z.**, Zaman, M., and Doiron, C. “Evaluation of Resilient Response of Unbound Aggregates Toward Implementation of the Mechanistic-Empirical Pavement Design in Oklahoma,” in Press, in the *Journal of Marine Science and Technology (JMST)*, 2014.
36. **Hossain, Z.**, Zaman, M., Saha, M. C., and Hawa, T., Evaluation of Viscosity and Rutting Properties of Nanoclay-modified Asphalt Binders, 10 pages, *ASCE Geotechnical Special Publication*, 2014 Geo-Congress on Geo-Characterization and Modeling for Geo-sustainability, Volume: Geo-Congress 2014 Number: GSP 234, March, 2014.
37. Diab, A., You, Z., **Hossain, Z.**, and Zaman, M., Moisture Susceptibility Evaluation of Nano-sized Hydrated Lime-Modified Asphalt-Aggregate Systems Based on Surface Free Energy Concept, *Transportation Research Board (TRB) Compendium*, Volume: 93, Number: N/A, January, 2014.
38. Solanki, P., Zaman, M., Adje, D., and **Hossain, Z.** (2013). “Field Construction and Mechanistic Performance of Hot Mix Asphalt Containing Reclaimed Asphalt Pavement,” *International Journal of Pavement Research and Technology (IJPRT)*, 6(4), pp. 403-413.
39. **Hossain, Z.**, Zaman, M., and Solanki, P. “Viscoelastic Properties of Asphalt Binders Recovered from Reclaimed Asphalt Pavement,” in the 17th IRF World Meeting & Exhibition Proceedings, November, Riyadh, Saudi Arabia, November 10-14, 2013.
40. **Hossain, Z.**, Zaman, M., and Saha, M. “Evaluation of Rutting and Moisture Susceptibility of Nanoclay-Modified Asphalt Binders,” in the 17th IRF World Meeting & Exhibition Proceedings, November, Riyadh, Saudi Arabia, November 10-14, 2013.
41. **Hossain, Z.**, Zaman, M., and Solanki, P. “Prediction of Dynamic Modulus of Asphalt Mixes with Reclaimed Asphalt Pavement,” in the 2013 Conference of the ASCE Engineering Mechanics Institute, August 4 – 7, 2013, Northwestern University, Evanston, IL.
42. **Hossain, Z.**, Zaman, M., and Solanki, P., “State-of-the-Practice and Mechanistic Evaluation of New Asphalt Mixes with High Reclaimed Asphalt in Oklahoma,” at the 2013 Summer Workshop TRB Committee ADC60 Committee for Waste Management and Resource Efficiency in Transportation, July 14-17, 2013, Pittsburgh, PA.
43. **Hossain, Z.**, Zaman, M., and Doiron, C. “Mechanistic Empirical Pavement Design Guide Input Parameters for Unbound Aggregates in Oklahoma,” 2nd IACGE International Conference on Geotechnical and Earthquake Engineering (IACGE 2013), to be held on October 25-27, 2013.
44. **Hossain, Z.**, Lewis, S., Zaman, M., Buddhala, A., and O’Rear, E. “Evaluation for warm mix additive-modified asphalt binders using spectroscopy techniques,” *Journal of Materials in Civil Engineering*, Vol. 25, No. 2, February 2013, pp. 149-159.

45. **Hossain, Z.**, and Zaman, M., “Sensitivity of Oklahoma Binders on Dynamic Modulus of Asphalt Mixes and Distress Functions,” in the *Journal of Materials in Civil Engineering*, Volume 24, No. 8, August, 2012.
46. **Hossain, Z.**, and Zaman, M., “Evaluation of High Temperature Viscoelastic Characteristics of Warm Mix Additive Modified Binders and Prediction of Dynamic Modulus of Mixes,” in the *91<sup>st</sup> Annual Meeting DVD-ROM Compendium Paper*, Transportation Research Board (TRB), 2012.
47. **Hossain, Z.**, Zaman, M., and Doiron, C. “Evaluation of Resilient Response of Unbound Aggregates Toward Implementation of the Mechanistic-Empirical Pavement Design in Oklahoma,” in the *91<sup>st</sup> Annual Meeting DVD-ROM Compendium Paper*, Transportation Research Board (TRB), 2012.
48. **Hossain, Z.**, Solanki, P., Zaman, M., Lewis, S., and Hobson, K. “Influence of Recovery Processes on Properties of Binders and Aggregates Recovered from Recycled Asphalt Pavement,” in the *Journal of ASTM International (JAI)*, Vol. 9, Issue 2, February 2012.
49. Budhala, A., **Hossain, Z.**, Wasiuddin, N. M., Zaman, M., and O’Rear, E. A. “Susceptibility of Asphalt Binder with Warm Mix Additives to Moisture Induced Damage by Surface Free Energy Analysis,” in the *ASTM Journal of Testing and Evaluation (JTE)*, Volume 40, Issue 1, January 2012.
50. **Hossain, Z.**, Zaman, M., Doiron, C., and Solanki, P. “Evaluation of Mechanistic-Empirical Design Guide Input Parameters for Resilient Modulus of Stabilized Subgrade Soils,” *ICSDEC 2012/ASCE Texas Section Conference/CI Summit*, November 7-9, 2012.
51. Pranshoo, S., P., **Hossain, Z.**, Adje, D., and Zaman, M. “Effect of Recycled Asphalt Pavement on Thermal Cracking Resistance of Hot Mix Asphalt,” 2nd International Symposium on Constitutive Modeling of Geomaterials: Advances and New Applications, Beijing, China, October 15-16, 2012.
52. **Hossain, Z.**, Buddhalla, A., O’Rear, A. O., Zaman, M., Laguros, J. L., and Lewis, S., “Recycled Asphalt Pavement in new Asphalt Mixtures: State of the Practice,” in the 2<sup>nd</sup> *International symposium on Asphalt Pavement and Environment*, October 1-3, 2012, Fortaleza, Brazil.
53. **Hossain, Z.**, Buddhalla, A., O’Rear, A. O., Zaman, M., Laguros, J. L., and Lewis, S., “Recycled Asphalt Pavement in new Asphalt Mixtures: State of the Practice,” in the 2<sup>nd</sup> *International symposium on Asphalt Pavement and Environment*, to be held on October 1-3, 2012, Fortaleza, Brazil.
54. **Hossain, Z.**, Solanki, P., Zaman, M., “Mechanistic Evaluation of Recovered Materials from Recycled Asphalt Pavement,” in Proc. of *GeoCongress 2012*, March 25-29, 2012.
55. Solanki, P., **Hossain, Z.**, Zaman, M., and Adje, D., “Volumetric and Mechanistic Characteristics of Asphalt Mixes Containing Recycled Asphalt Pavement,” in Proc. of *GeoCongress 2012*, March 25-29, 2012 and Geotechnical Special Publication, Issue 225 GSP, 2012, Pages 3709-3718.
56. **Hossain, Z.**, Zaman, M., Wasiuddin, N., Sneed, J., and O’Rear, E., “Rheological Evaluation of warm mix and Anti-stripping Additives Modified Superpave Binders,” submitted (in review), in the *International Journal of Road Materials and Pavement Design (IJRMPD)*, Vol. 12, No. 4, 2011,
57. **Hossain, Z.**, Zaman, M., O’Rear, E., and Chen, D. “Effectiveness of Water-bearing and Anti-stripping Additives in Warm Mix Asphalt Technology,” in the *International Journal of Pavement Engineering (IJPE)*, <http://www.tandfonline.com/doi/abs/10.1080/10298436.2011.616588>, December 2011, pp. 1-9.



58. **Hossain, Z.,** Zaman, M., Doiron, C., and Solanki, P. “Evaluation of Mechanistic-Empirical Design Guide Input Parameters for Resilient Modulus of Subgrade Soils in Oklahoma,” in *the ASTM International Journal of Testing and Evaluation (JTE)*, Vol. 39, No. 5, Sept. 2011.
59. **Hossain, Z.,** M. Zaman, E. O’Rear, and Chen, D. “Laboratory Evaluation of Water-bearing Additive for Warm Mix Asphalt,” in *the 90<sup>th</sup> Transportation Research Board Annual Meeting DVD-ROM Compendium Paper, Transportation Research Board (TRB)*, Washington, DC, 2011.
60. **Hossain, Z.,** Zaman, M., Doiron, C., and Solanki, P. “Characterization of Subgrade Resilient Modulus for Oklahoma Soils for Pavement Design,” in *GeoFrontiers 2011*, 13-16 March, Dallas.
61. **Hossain, Z.,** Zaman, M., O’Rear E. A. and Chen, D. H. (2011). “Effectiveness of Liquid Anti-stripping Agent on Performance Grade Binder Modified with Warm Mix Additive,” in *ASCE Geotechnical Special Publication (GSP)*, No. 218, Emerging Technologies for Material, Design, Rehabilitation, and Inspection of Roadway Pavements, pp. 9-16.
62. **Hossain, Z.,** Zaman, M., and Hobson, K. “Effects of Liquid Anti-Strips on Rheological Properties of Performance Grade Binders,” in *the International Journal of Pavement Research and Technology (IJPRT)*, Volume 3, Number 4, July, 2010. pp. 160-170.
63. **Hossain, Z.,** and M. Zaman, “Energy Efficient Paving: Prospects and Concerns,” *US-China Workshop on Energy and Environment in the Development of Sustainable Asphalt Pavements*, Chang’an University, Xian, China, June 6 to June 8, 2010.
64. Hossain, Z., and M. Zaman, “Rheological Properties of Performance Grade Binders Using a Dynamic Mechanical Analyzer,” in the ASCE on Pavements and Materials: Modeling, Testing, and Performance, *Geotechnical Special Publication, No. 184, Pavements and Materials: Modeling, Testing, and Performance*, 2008, pp. 140-149.
65. **Hossain, Z.,** and Zaman, M., “Dynamic Mechanical Analysis of Performance Grade Asphalt Binder,” *12<sup>th</sup> International Conference of International Association for Computer Methods and Advances in Geomechanics (IACMAG)*, October 1-6, 2008, Goa, India.
66. **Hossain, Z.,** and Zaman, M., “Rheological Properties of Performance Grade Binders Using A Dynamic Mechanical Analyzer,” in *the Inaugural International Conference of the Engineering Mechanics Institute (EM)*, May18-21, 2008. Minneapolis, MN.
67. Ali, A., de Souza, R., and **Hossain, Z.** “Intelligent Product Mix and Material Match in Electronics Manufacturing”, in the *International Journal Neural, Parallel and Scientific Computations*, vol.11, 2003, pp. 97-118.
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2. Rashid, F. and **Hossain, Z.**, Use of Open Graded Friction Course in Pavement Construction: A Sustainable way to Balance Technology and Nature, Accepted, in the 5th International Conference on Solid Waste Management in South Asian Countries, February 2017, Khulna, Bangladesh
3. **Hossain, Z.**, Bairgi, B., and Belshe, M. Moisture Susceptibility of Ground Tire Rubber Modified Asphalt Binder, Rubberized Asphalt Rubber 2015 (RAR2015) Conference, October 4-7, 2015, Las Vegas, NV.
4. Baker, D., Hawa, T., **Hossain, Z.**, Saha, M., and Zaman, M., Measurements of Thermal and Healing Properties of Nanoclay Modified Asphalt Binders Using Molecular Dynamics Simulations, Bulletin of the American Physical Society, March 5, 2014, Denver, Colorado
5. **Hossain, Z.**, Zaman, M., and Solanki, P. “Prediction of Dynamic Modulus of Asphalt Mixes with Reclaimed Asphalt Pavement,” 2013 Conference of the ASCE Engineering Mechanics Institute, August 4-7, 2013, Northwestern University, Evanston, IL.
6. **Hossain, Z.**, Zaman, M., and Solanki, P. State-of-the-Practice and Mechanistic Evaluation of New Asphalt Mixes with High Reclaimed Asphalt, 2013 Summer Workshop of the TRB Committee ADC60 on Sustainable Best Management Practices in Transportation, July 14-17, 2013, Pittsburgh, PA.
7. **Hossain, Z.**, Solanki, P., Zaman, M., Laguros, M., and Lewis, S., Test Methods For Use of Recycled Asphalt Pavement In Asphalt Mixes, Final Report, March 2012, ODOT SPR No. 2223, *Oklahoma Department of Transportation*, Oklahoma City, 149 pages.
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9. Pranshoo, S., P., **Hossain, Z.**, Adje, D., Ghabchi, R., Singh, D., and Zaman, M. “Effect of Recycled Asphalt Pavement on Mechanistic Properties of Hot Mix Asphalt,” OkTC-ODOT Research Day, October 4, 2012.
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11. **Hossain, Z.**, Zaman, M., and Doiron, C., Development of Flexible Pavement Database for Local Calibration of MEPDG, Final Report, January 2011, ODOT SPR No. 2209, *Oklahoma Department of Transportation*, Oklahoma City, 150 pages.
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- Asphalt Pavement, 47<sup>th</sup> Petersen Asphalt Research Conference (PARC), Western Research Institute, July 12-15, 2010 in Laramie, Wyoming.
14. **Hossain, Z.**, Zaman, M., Evaluating the Effects of Sasobit<sup>®</sup> and Advera<sup>®</sup> on Asphalt Binder by Conducting DMA-based Sweep Tests, In the Ph. D. Research Workshop in Bituminous Materials and Mixtures, Transportation Research Board, 88<sup>th</sup> Annual Meeting, January 11-15, 2009, Washington DC.
  15. **Hossain, Z.**, and Zaman, M., Development of Flexible Pavement Database for Local Calibration of MEPDG, Annual Report for FY 2009, ODOT SPR No. 2209, *Oklahoma Department of Transportation*, Oklahoma City, 17 pages.
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### **Professional Associations**

- Member, American Society of Civil Engineers (ASCE)
- Member, Geo-Institute (GI)
- Member, National Dean List
- Trustee, Chi-Epsilon Honor Society
- Member, Association for Computing Machinery (ACM)
- Member, University of Oklahoma Database Group
- Member, Institute of Engineers, Bangladesh

### **Honors and Awards**

- 2014 ORAU: Ralph E. Powe Jr. Faculty Enhancement Awards
- 2013 Arkansas State University Faculty Award for Scholarship
- 2012 University Transportation Center (UTC)
- President’s Gold Medal, Khulna University of Engineering and Technology, Bangladesh