

# AMIT BHASIN

Professor, Temple Foundation Endowed Teaching Fellow  
Department of Civil Architectural and Environmental Engineering  
Director, Center for Transportation Research  
The University of Texas at Austin  
301 E Dean Keeton Stop C1761, Austin, Texas - 78712  
Phone: (512) 471 3667, Email: a-bhasin@mail.utexas.edu

---

## EDUCATION

Ph.D., Civil Engineering, Texas A&M University	May 2006
M.E., Civil Engineering, Texas A&M University	August 2003
B.Tech., Civil Engineering, Institute of Technology, BHU, India	May 1997

## PROFESSIONAL LICENSE

Professional Engineer State of Texas, License Number 126265

## CURRENT AND PREVIOUS ACADEMIC POSITIONS

- [1] Visiting Assistant Professor, Zachry Department of Civil Engineering, Texas A&M University (September 2007 to January 2008)
- [2] Assistant Professor, Department of Civil, Architectural, and Environmental Engineering, The University of Texas at Austin (September 2008 to August 2014)
- [3] Associate Professor, Department of Civil, Architectural, and Environmental Engineering, The University of Texas at Austin (September 2014 to August 2019)
- [4] Professor, Department of Civil, Architectural, and Environmental Engineering, The University of Texas at Austin (September 2019 to present)

## OTHER PROFESSIONAL EXPERIENCE

- [1] Engineer (Civil), Engineers India Limited (India), (July 1997 to December 1999)
- [2] Project Coordinator, Madhucon Projects Limited (India), (January 2000 to June 2001)
- [3] Design Engineer, Samveshak (India), (June 2001 to May 2002)
- [4] Graduate Research Assistant, Texas Transportation Institute, Texas A&M University (June 2002 to May 2006)
- [5] Associate Research Scientist, Texas Transportation Institute, Texas A&M University (May 2006 to July 2008)

## HONORS AND AWARDS

- [1] National Outstanding Achievement Award by Management Studies Promotion Institute, New Delhi, 1999
- [2] Bharat Excellence Award, New Delhi, 2000
- [3] Annual AAPT Scholarship sponsored by the Association of the Asphalt Paving Technologists, 2004

- [4] Best paper award by the International Scientific Committee at the 6th International Conference on Maintenance and Rehabilitation of Pavements and Technological Control, Italy, 2009
- [5] National Science Foundation Faculty Early Career Development (CAREER) Award, 2011
- [6] Member, Society for Teaching Excellence, The University of Texas at Austin
- [7] Regents Outstanding Teaching Award from The University of Texas System (Eight Universities and Six Health Institutions), Board of Regents, 2013
- [8] Faculty Appreciation by Texas Blazers Organization at The University of Texas at Austin, 2013
- [9] New Faculty Award for Outstanding Research and Teaching Contributions to the Transportation Field from the Council of University Transportation Centers - American Road and Transportation Builders Association (CUTC-ARTBA), 2014
- [10] Selected for United States Frontiers of Engineering Education, National Academy of Engineers, 2014
- [11] President's Associates Teaching Excellence Award (recognizes teaching excellence in core curriculum), The University of Texas at Austin, 2016
- [12] Walter L. Huber Research Prize in Civil Engineering, American Society of Civil Engineers, 2017
- [13] Alumnus of the Century in Making Award from the Indian Institute of Technology (BHU), Varanasi, 2019

## **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

Associate Member, American Society of Civil Engineers

## **PROFESSIONAL SOCIETY AND MAJOR GOVERNMENTAL COMMITTEES**

### **Editorial**

- [1] Associate Editor, International Journal of Pavement Engineering, Publ. Taylor and Francis, (2013 - present)
- [2] Editorial Board Member, Road Materials and Pavement Design, Publ. Taylor and Francis (2013 - present)

### **Professional**

- [1] American Society of Civil Engineers
  - Committee member, Pavements Committee, Geo-Institute (2008 - 2012)
  - Committee member, Pavements Committee, Transportation and Development Institute (2016 - present)
- [2] Transportation Research Board
  - Chair, Sub-Committee on Advanced Models to Understand Behavior and Performance of Asphalt Mixtures, AFK 50-1 (2012 - 2018)
  - Committee Member, AFK 20, Characteristics of Asphalt Materials (2011 - present)

- Committee Member, AFK 50, Characteristics of Bituminous Paving Mixtures to Meet Structural Requirements, (2010 - present)
  - Panel Member, NCHRP Project 9-50 (2010 - 2016)
  - Panel Member, NCHRP Project 1-54 (2013 - 2017)
  - Panel Member, NCHRP Synthesis 20-05 (2015 - 2017)
- [3] International Conference on Advances in Materials and Pavement Performance Prediction
- Co-Chair, Doha, Qatar (2018)
- [4] Academy for Pavement Science and Engineering
- Founding Member
  - President (2017 - 2019) and Past President (2019 - present)

### **Technical Reviewer for Journals**

- [1] Journal of Computing in Civil Engineering (ASCE)
- [2] Journal of Engineering Mechanics (ASCE)
- [3] Journal of Materials in Civil Engineering (ASCE)
- [4] Journal of Transportation Engineering (ASCE)
- [5] Journal of Transportation Engineering, Part B: Pavements (ASCE)
- [6] Journal of Testing and Evaluation (ASTM)
- [7] Advances in Civil Engineering Materials (ASTM)
- [8] Construction and Building Materials (Elsevier)
- [9] Fuel (Elsevier)
- [10] International Journal of Solids and Structures (Elsevier)
- [11] Soils and Foundations (Elsevier)
- [12] Transportation Research Record, Transportation Research Board (NRC)
- [13] Mechanics of Time Dependent Materials (Springer)
- [14] International Journal of Pavement Engineering (Taylor & Francis)
- [15] International Journal of Road Materials and Pavement Design (Taylor & Francis)
- [16] International Journal for Numerical and Analytical Methods in Geomechanics (Wiley)
- [17] International Journal of Pavement Research and Technology

### **Others**

Panel member and technical reviewer for National Science Foundation, 2009, 2011, 2013, 2016.

### **TEACHING**

1. CE366K (Undergraduate) / CE 391Q (Graduate): Design of Bituminous Mixtures
2. CE311S (Undergraduate): Probability and Statistics for Civil Engineers
3. CE397 (Graduate): Characterization of Viscoelastic Materials
4. CE397 (Graduate): Sustainable Pavement Engineering

5. CE397 (Graduate): Advanced Characterization of Bituminous Materials
6. UGS302 (Undergraduate signature course): Materials Science and Technology: Triumphs, Disasters and Future Challenges
7. CE391P (Graduate): Design of Flexible Pavements
8. CE301 (Undergraduate; co-taught - this course was also a subject of research on undergraduate learning and retention supported by the Curriculum Innovation Grant at UT Austin): Introduction to Civil Engineering,

## PUBLICATIONS

NOTE \* indicates a presentation at an affiliated conference

### A. Refereed Archival Journal Publications

- [J1] A. Bhasin\*, J. W. Button, and A. Chowdhury. “Evaluation of simple performance tests on hot-mix asphalt mixtures from south central United States”. In: *Transportation Research Record: Journal of the Transportation Research Board* 1891.1 (Aug. 2004), pp. 174–181
- [J2] A. Bhasin\*, J. W. Button, A. Chowdhury, and E. Masad. “Selection of optimum gravel aggregate size to resist permanent deformation in hot-mix asphalt”. In: *Transportation Research Record: Journal of the Transportation Research Board* 1952.1 (Aug. 2006), pp. 39–47
- [J3] A. Bhasin\*, E. Masad, D. Little, and R. Lytton. “Limits on adhesive bond energy for improved resistance of hot-mix asphalt to moisture damage”. In: *Transportation Research Record: Journal of the Transportation Research Board* 1970.1 (Aug. 2006), pp. 3–13
- [J4] J. W. Button, A. Chowdhury, and A. Bhasin. “Transitioning from Texas Gyrotory Compactor to Superpave Gyrotory Compactor”. In: *Transportation Research Record: Journal of the Transportation Research Board* 1970.1 (Aug. 2006), pp. 106–115
- [J5] A. W. Hefer, A. Bhasin, and D. N. Little. “Bitumen surface energy characterization using a contact angle approach”. In: *Journal of Materials in Civil Engineering (ASCE)* 18.6 (Dec. 2006), pp. 759–767
- [J6] A. Bhasin, J. E. Howson, E. Masad, D. N. Little, and R. L. Lytton. “Effect of modification processes on bond energy of asphalt binders”. In: *Transportation Research Record: Journal of the Transportation Research Board* 1998.1 (Aug. 2007), pp. 29–37
- [J7] A. Bhasin and D. N. Little. “Characterization of aggregate surface energy using the Universal Sorption Device”. In: *Journal of Materials in Civil Engineering* 19.8 (Aug. 2007), pp. 634–641
- [J8] A. Bhasin\*, D. N. Little, K. L. Vasconcelos, and E. Masad. “Surface free energy to identify moisture sensitivity of materials for asphalt mixes”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2001.1 (Aug. 2007), pp. 37–45
- [J9] P. E. Sebaaly, D. Little, E. Y. Hajj, and A. Bhasin. “Impact of lime and liquid antistripping agents on properties of Idaho hot-mix asphalt mixture”. In: *Transportation Research Record: Journal of the Transportation Research Board* 1998.1 (Aug. 2007), pp. 65–74
- [J10] S. Caro, E. Masad, A. Bhasin, and D. N. Little. “Moisture susceptibility of asphalt mixtures, Part 1: Mechanisms”. In: *International Journal of Pavement Engineering* 9.2 (Mar. 2008), pp. 81–98

- [J11] S. Caro, E. Masad, A. Bhasin, and D. Little. “Moisture susceptibility of asphalt mixtures, Part 2: Characterization and modeling”. In: *International Journal of Pavements Engineering* 9.2 (Mar. 2008), pp. 99–114
- [J12] A. Bhasin, D. N. Little, R. Bommavaram, and K. Vasconcelos. “A framework to quantify the effect of healing in bituminous materials using material properties”. In: *Road Materials and Pavement Design* 9.S1 (Apr. 2008), pp. 219–242
- [J13] S. Caro, E. Masad, G. D. Airey, A. Bhasin, and D. N. Little. “Probabilistic analysis of fracture in asphalt mixtures caused by moisture damage”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2057.1 (July 2008), pp. 28–36
- [J14] V. T. Castelo Branco, E. Masad, A. Bhasin\*, and D. N. Little. “Fatigue analysis of asphalt mixtures independent of mode of loading”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2057.1 (July 2008), pp. 149–156
- [J15] Y.-R. Kim, J. S. Lutif, A. Bhasin, and D. N. Little. “Evaluation of moisture damage mechanisms and effects of hydrated lime in asphalt mixtures through measurements of mixture component properties and performance testing”. In: *Journal of Materials in Civil Engineering (ASCE)* 20.10 (Oct. 2008), pp. 659–667
- [J16] A. Bhasin, V. T. Castelo Branco, E. Masad, and D. N. Little. “Quantitative comparison of energy methods to characterize fatigue in asphalt materials”. In: *Journal of Materials in Civil Engineering (ASCE)* 21.2 (Feb. 2009), pp. 83–92
- [J17] A. Bhasin and D. N. Little. “Application of microcalorimeter to characterize adhesion between asphalt binders and aggregates”. In: *Journal of Materials in Civil Engineering (ASCE)* 21.6 (June 2009), pp. 235–243
- [J18] R. R. Bommavaram, A. Bhasin\*, and D. N. Little. “Determining intrinsic healing properties of asphalt binders: role of Dynamic Shear Rheometer”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2126.1 (Aug. 2009), pp. 47–54
- [J19] S. Caro, E. A. Masad, A. Bhasin, D. N. Little, and M. Sanchez-Silva. “Probabilistic modeling of the effect of air voids on the mechanical performance of asphalt mixtures subjected to moisture diffusion”. In: *Journal of the Association of Asphalt Paving Technologists* 79 (Mar. 2010), pp. 221–252
- [J20] E. A. Masad, J. E. Howson, A. Bhasin, S. Caro, and D. N. Little. “Relationship of ideal work of fracture to practical work of fracture: background and experimental results”. In: *Journal of the Association of Asphalt Paving Technologists* 79 (Mar. 2010), pp. 81–118
- [J21] K. L. Vasconcelos, A. Bhasin, and D. N. Little. “Influence of reduced production temperatures on the adhesive properties of aggregates and laboratory performance of fine aggregate-asphalt mixtures”. In: *Road Materials and Pavement Design* 11.1 (Mar. 2010), pp. 47–64
- [J22] S. Caro, E. A. Masad, A. Bhasin, and D. N. Little. “Coupled micromechanical model of moisture-induced damage in asphalt mixtures”. In: *Journal of Materials in Civil Engineering (ASCE)* 22.4 (Apr. 2010), pp. 380–388
- [J23] S. Caro, E. Masad, A. Bhasin, and D. Little. “Micromechanical modeling of the influence of material properties on moisture-induced damage in asphalt mixtures”. In: *Construction and Building Materials* 24.7 (July 2010), pp. 1184–1192
- [J24] K. L. Vasconcelos, A. Bhasin, and D. N. Little. “Measurement of water diffusion in asphalt binders using Fourier Transform Infrared-Attenuated Total Reflectance”. In: *Transportation*

- Research Record: Journal of the Transportation Research Board* 2179.1 (Sept. 2010), pp. 29–38
- [J25] A. Bhasin, R. Bommavaram, M. L. Greenfield, and D. N. Little. “Use of molecular dynamics to investigate self-healing mechanisms in asphalt binders”. In: *Journal of Materials in Civil Engineering (ASCE)* 23.4 (Apr. 2011), pp. 485–492
- [J26] K. L. Vasconcelos, A. Bhasin, D. N. Little, and R. L. Lytton. “Experimental measurement of water diffusion through fine aggregate mixtures”. In: *Journal of Materials in Civil Engineering (ASCE)* 23.4 (Apr. 2011), pp. 445–452
- [J27] J. Howson, E. Masad, A. Bhasin, D. Little, and R. Lytton. “Comprehensive analysis of surface free energy of asphalts and aggregates and the effects of changes in pH value”. In: *Construction and Building Materials* 25.5 (May 2011), pp. 2554–2564
- [J28] A. Bhasin and A. Motamed. “Analytical models to characterize crack growth in asphaltic materials and healing in asphalt binders”. In: *International Journal of Pavement Engineering* 12.4 (Aug. 2011), pp. 371–384
- [J29] Z. Arega, A. Bhasin, A. Motamed, and F. Turner. “Influence of warm-mix additives and reduced aging on the rheology of asphalt binders with different natural wax contents”. In: *Journal of Materials in Civil Engineering (ASCE)* 23.10 (Oct. 2011), pp. 1453–1459
- [J30] A. Bhasin, A. Izadi, and S. Bedgaker. “Three dimensional distribution of the mastic in asphalt composites”. In: *Construction and Building Materials* 25.10 (Oct. 2011), pp. 4079–4087
- [J31] A. Bhasin\*, N. S. Palvadi, and D. N. Little. “Influence of aging and temperature on intrinsic healing of asphalt binders”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2207.1 (Oct. 2011), pp. 70–78
- [J32] K. L. Vasconcelos, A. Bhasin, and D. N. Little. “History dependence of water diffusion in asphalt binders”. In: *International Journal of Pavement Engineering* 12.5 (Oct. 2011), pp. 497–506
- [J33] A. Motamed, A. Bhasin, and K. M. Liechti. “Interaction nonlinearity in asphalt binders”. In: *Mechanics of Time-Dependent Materials* 16.2 (May 2012), pp. 145–167
- [J34] C. Miller, D. N. Little, A. Bhasin, N. Gardner, and B. Herbert. “Surface energy characteristics and impact of natural minerals on aggregate-bitumen bond strengths and asphalt mixture durability”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2267.1 (Aug. 2012), pp. 45–55
- [J35] R. G. Allen, D. N. Little, and A. Bhasin. “Structural characterization of micromechanical properties in asphalt using atomic force microscopy”. In: *Journal of Materials in Civil Engineering* 24.10 (Oct. 2012), pp. 1317–1327. ISSN: 0899-1561
- [J36] N. S. Palvadi, A. Bhasin\*, and D. N. Little. “Method to quantify healing in asphalt composites by continuum damage approach”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2296.1 (Dec. 2012), pp. 86–96
- [J37] A. Banerjee, A. Bhasin, and J. Prozzi. “Characterizing stability of asphalt emulsions using electrokinetic techniques”. In: *Journal of Materials in Civil Engineering (ASCE)* 25.1 (Jan. 2013), pp. 78–85
- [J38] A. Motamed, A. Bhasin, and K. M. Liechti. “Constitutive modeling of the nonlinearly viscoelastic response of asphalt binders; incorporating three-dimensional effects”. In: *Mechanics of Time-Dependent Materials* 17.1 (Feb. 2013), pp. 83–109

- [J39] R. G. Allen, D. N. Little, A. Bhasin, and R. L. Lytton. “Identification of the composite relaxation modulus of asphalt binder using AFM nanoindentation”. In: *Journal of Materials in Civil Engineering (ASCE)* 25.4 (Apr. 2013), pp. 530–539. ISSN: 0899-1561
- [J40] Z. A. Arega, A. Bhasin, and T. D. Kesel. “Influence of extended aging on the properties of asphalt composites produced using hot and warm mix methods”. In: *Construction and Building Materials* 44 (July 2013), pp. 168–174
- [J41] A. Motamed, A. Bhasin, and A. Izadi. “Evaluating fatigue cracking resistance of asphalt binders in a standardized composite using continuum damage theory”. In: *Journal of Materials in Civil Engineering (ASCE)* 25.9 (Sept. 2013), pp. 1209–1219
- [J42] R. G. Allen, D. N. Little, A. Bhasin, and C. J. Glover. “The effects of chemical composition on asphalt microstructure and their association to pavement performance”. In: *International Journal of Pavement Engineering* 15.1 (Jan. 2014), pp. 9–22
- [J43] A. Motamed, A. Bhasin, and K. M. Liechti. “Using the poker-chip test for determining the bulk modulus of asphalt binders”. In: *Mechanics of Time-Dependent Materials* 18.1 (Feb. 2014), pp. 197–215
- [J44] S. Sultana, A. Bhasin, and K. M. Liechti. “Rate and confinement effects on the tensile strength of asphalt binder”. In: *Construction and Building Materials* 53 (Feb. 2014), pp. 604–611
- [J45] Z. A. Arega, A. Bhasin, W. Li, D. E. Newcomb, and E. Arambula. “Characteristics of asphalt binders foamed in the laboratory to produce warm mix asphalt”. In: *Journal of Materials in Civil Engineering (ASCE)* 26.11 (Nov. 2014), p. 04014078
- [J46] S. Sultana and A. Bhasin. “Effect of chemical composition on rheology and mechanical properties of asphalt binder”. In: *Construction and Building Materials* 72 (Dec. 2014), pp. 293–300
- [J47] A. Motamed, D. Salomon, N. Sakib, and A. Bhasin\*. “Emulsified asphalt residue recovery and characterization: Combined use of Moisture Analyzer Balance and Dynamic Shear Rheometer”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2444 (Jan. 2015), pp. 88–96
- [J48] P. Karki, R. Li, and A. Bhasin. “Quantifying overall damage and healing behavior of asphalt materials using continuum damage approach”. In: *International Journal of Pavement Engineering* 16.4 (June 2015), pp. 350–362. ISSN: 1029-8436
- [J49] R. Jahangir, D. Little, and A. Bhasin. “Evolution of asphalt binder microstructure due to tensile loading determined using AFM and image analysis techniques”. In: *International Journal of Pavement Engineering* 16.4 (June 2015), pp. 337–349. ISSN: 1029-8436
- [J50] Z. A. Arega, A. Bhasin, and W. Li. “Parametric analysis of factors that affect asphalt binder foaming characteristics”. In: *Journal of Materials in Civil Engineering (ASCE)* 27.12 (Apr. 2015), p. 04015052
- [J51] I. Menapace, E. Masad, A. Bhasin, and D. Little. “Microstructural properties of warm mix asphalt before and after laboratory-simulated long-term ageing”. In: *Road Materials and Pavement Design* 16.sup1 (May 2015), pp. 2–20
- [J52] R. Li, P. Karki, P. Hao, and A. Bhasin. “Rheological and low temperature properties of asphalt composites containing rock asphalts”. In: *Construction and Building Materials* 90 (Oct. 2015), pp. 47–54

- [J53] J. Zhang, E. Arambula, D. E. Newcomb, A. Bhasin, and D. N. Little. “Effects of asphalt source, asphalt grade and inclusion of additives on asphalt foaming characteristics”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2505 (Nov. 2015)
- [J54] P. H. Osmari, Z. A. Arega, and A. Bhasin\*. “Wetting characteristics of asphalt binders at mixing temperatures”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2505 (Nov. 2015), pp. 66–75
- [J55] I. Menapace, E. A. Masad, and A. Bhasin. “Effect of treatment temperature on the microstructure of asphalt binders: insights on the development of dispersed domains”. In: *Journal of Microscopy* 262.1 (Apr. 2016), pp. 12–27
- [J56] A. Ramm, N. Sakib, A. Bhasin, and M. Downer. “Optical characterization of temperature- and composition- dependent microstructure in asphalt binders”. In: *Journal of microscopy* 262.3 (June 2016), pp. 216–225
- [J57] M. Guo, A. Motamed, Y. Tan, and A. Bhasin. “Investigating the interaction between asphalt binder and fresh and simulated RAP aggregate”. In: *Journal of Materials and Design* 105 (Sept. 2016), pp. 25–33
- [J58] R. Jahangir, D. N. Little, and A. Bhasin\*. “Study of evolution of asphalt binder microstructure resulting from aging and tensile loading”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2574 (Oct. 2016), pp. 17–27
- [J59] P. Karki, A. Bhasin\*, and B. S. Underwood. “Fatigue performance prediction of asphalt composites subjected to cyclic loading with intermittent rest periods”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2576 (Nov. 2016), pp. 72–82
- [J60] A. Baldi-Sevilla, M. L. Montero, J. P. Aguiar-Moya, L. G. Loria-Salazar, and A. Bhasin. “Influence of bitumen and aggregate polarity on interfacial adhesion”. In: *Road Materials and Pavement Design* 18.S2 (May 2017), pp. 304–317
- [J61] M. Guo, A. Bhasin, and Y. Tan. “Effect of mineral fillers adsorption on rheological and chemical properties of asphalt binder”. In: *Construction and Building Materials* 141 (June 2017), pp. 152–159
- [J62] R. A. Freire, F. A. L. Babadopulos, V. T. Castelo Branco, and A. Bhasin\*. “Aggregate maximum nominal sizes’ influence on fatigue damage performance using different scales”. In: *Journal of Materials in Civil Engineering* 29.8 (Aug. 2017), p. 04017067
- [J63] L. G. Cucalon, A. Bhasin, E. Kassem, D. N. Little, B. Herbert, and E. A. Masad. “Physicochemical characterization of binder-aggregate adhesion varying with temperature and moisture”. In: *Journal of Transportation Engineering: Part B* 143.3 (Sept. 2017), p. 04017007
- [J64] N. Sakib, Z. A. Arega, A. Bhasin, and G. Peterson. “An investigation into the continuous high-temperature grade and elastic recovery of asphalt binders measured using the creep-recovery test”. In: *Journal of Testing and Evaluation, American Society of Testing and Materials* 45.5 (Sept. 2017)
- [J65] A. Bhasin and V. Ganesan. “Preliminary investigation of using a multi-component phase field model to evaluate microstructure of asphalt binders”. In: *International Journal of Pavement Engineering* 18.9 (Sept. 2017), pp. 775–782
- [J66] R. Hajj, R. Hure, and A. Bhasin\*. “Evaluation of stiffness, strength, and ductility of asphalt binders at intermediate temperature”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2632 (Nov. 2017), pp. 44–51



- [J67] R. Hajj and A. Bhasin. “The search for a measure of fatigue cracking in asphalt binders - A review of different approaches”. In: *International Journal of Pavement Engineering* 19.3 (Mar. 2018), pp. 205–219
- [J68] I. V. Sabaraya, A. Filonzi, R. Hajj, D. Das, N. B. Saleh, and A. Bhasin. “Ability of nanomaterials to effectively disperse in asphalt binders for use as a modifier”. In: *Journal of Materials in Civil Engineering (ASCE)* 30.8 (Aug. 2018), p. 04018166
- [J69] J. Marshall, A. Bhasin, S. Boyles, B. David, R. James, and A. Patrick. “A Project-Based Cornerstone Course in Civil Engineering: Student Perceptions and Identity Development”. In: *Advances in Engineering Education* 6.3 (May 2018), n3
- [J70] A. Ramm, N. Sakib, A. Bhasin, and M. Downer. “Correlated time-variation of bulk microstructure and rheology in asphalt binders”. In: *Journal of Microscopy* 271.3 (Sept. 2018), pp. 282–292
- [J71] Z. Jun, S. Maryam, D. N. Little, A. Bhasin, and Y.-R. Kim. “Characterization of Crack Growth Rate of Sulfur-Extended Asphalt Mixtures Using Cyclic Semicircular Bending Test”. In: *Journal of Materials in Civil Engineering* 30.12 (Dec. 2018), p. 4018311
- [J72] P. Apostolidis, A. Bhasin, C. Kasbergen, A. Scarpas, and S. Erkens. “Study of asphalt binder fatigue with a new dynamic shear rheometer geometry”. In: *Transportation Research Record: Journal of the Transportation Research Board* 2672 (Dec. 2018), pp. 290–300
- [J73] R. Feroze, Z. Hossain, and A. Bhasin. “Nanomechanistic properties of reclaimed asphalt pavement modified asphalt binders by using an atomic force microscope”. In: *International Journal of Pavement Engineering* 20.3 (Mar. 2019), pp. 357–365
- [J74] R. Hajj, A. Filonzi, A. d. F. Smit, and A. Bhasin. “Design and performance of mixes for use as an ultra thin overlay”. In: *Journal of Transportation Engineering: Part B* 145.3 (Sept. 2019), p. 04019026
- [J75] A. Sreeram, Z. Leng, R. Hajj, and A. Bhasin. “Characterization of compatibility between aged and unaged binders in bituminous mixtures through an extended HSP model of solubility”. In: *Fuel* 254 (Oct. 2019), p. 115578
- [J76] N. Sakib and A. Bhasin. “Measuring polarity-based distributions (SARA) of bitumen using simplified chromatographic techniques”. In: *International Journal of Pavement Engineering* 20.12 (Dec. 2019), pp. 1371–1384

#### Refereed Archival Journal Publications - Accepted

- [J77] N. Sakib, A. Bhasin, M. K. Islam, K. Khan, and M. I. Khan. “A review of the evolution of technologies to use sulphur as a pavement construction material”. In: *International Journal of Pavement Engineering* (May 2019), In Press
- [J78] R. Hajj, A. Filonzi, S. Rahman, and A. Bhasin\*. “Considerations for using the 4 mm plate geometry in the Dynamic Shear Rheometer for low temperature evaluation of asphalt binders”. In: *Transportation Research Record: Journal of the Transportation Research Board* (Jan. 2019), In Press
- [J79] Z. Mascarenhas, M. D. S. Gaspar, K. L. Vasconcelos, L. L. B. Bernucci, and A. Bhasin. “Case study of a composite layer with large stone asphalt mixture for heavy traffic highways”. In: *Journal of Transportation Engineering: Part B* In Press (2019)
- [J80] R. Hajj, A. Ramm, A. Bhasin, and M. C. Downer. “Real-time microscopic and rheometric observations of strain-driven cavitation instability underlying micro-crack formation in asphalt binders”. In: *International Journal of Pavement Engineering* In Press (July 2019)

- [J81] A. Ramm, M. Downer, N. Sakib, and A. Bhasin. “Morphology and kinetics of asphalt binder microstructure at gas, liquid, and solid interfaces”. In: *Journal of Microscopy* In Press (Oct. 2019)

## B. Refereed Conference Proceedings

- [C1] C. Ghosh and A. Bhasin\*. “Low cost foundation treatment by using mini stone column and micropiles”. In: *ECOHOME 94, All India Seminar on Low Cost Housing*. Nagpur, India: Institution of Engineering (India), 1994, pp. 104–108
- [C2] A. Bhasin\* and C. Ghosh. “Use of geosynthetics in pavement - New design approached”. In: *Terzaghi '95*. Visakhapatnam, India: Andhra University, 1995, pp. 1–4
- [C3] C. Ghosh and A. Bhasin. “Finite element analysis for reinforced foundation bed”. In: *IGC-95*. Bangalore, India, 1995, pp. 435–439
- [C4] D. Mohan, A. Bhasin\*, and A. K. Shukla. “Residential building construction - An environmentally friendly approach”. In: *All India Seminar on Engineering Education in 21st Century*. Varanasi, India: Institute of Technology, BHU, 1995, pp. 83–86
- [C5] C. Ghosh and A. Bhasin. “Displacement controlled pullout test of geotextile in granular soil”. In: *International Symposium on Earth Reinforcement*. Kyushu, Japan, 1996, pp. 35–38
- [C6] A. Bhasin, J. W. Button, and A. Chowdhury. “Laboratory evaluation of simple performance tests on polymer-modified asphalt mixtures”. In: *3rd Euroasphalt and Eurobitume Congress*. Vienna, Austria, 2004, pp. 1878–1888
- [C7] A. Bhasin, A. Chowdhury, J. Button, and D. Little. “Evaluation of material property tests to predict moisture susceptibility of hot mix asphalt”. In: *10th International Conference on Asphalt Pavements*. Vol. 1. Quebec City, Canada, Aug. 2006, pp. 699–708
- [C8] G. D. Airey, E. A. Masad, A. Bhasin, S. Caro, and D. N. Little. “Asphalt mixture moisture damage assessment combined with surface energy characterization”. In: *Conference on Advanced Characterization of Pavement and Soil Engineering Materials*. Athens, Greece, 2007
- [C9] J. E. Howson, A. Bhasin, E. A. Masad, D. N. Little, R. L. Lytton, and G. Claros. “Influence of material factors on surface energy and adhesive bond energy”. In: *Conference on Advanced Characterization of Pavement and Soil Engineering Materials*. Athens, Greece, 2007
- [C10] S. Caro, G. D. Airey, E. A. Masad, A. Bhasin, and D. N. Little. “Moisture susceptibility of asphalt mixtures combined with surface free energy and fracture property characterization”. In: *International Symposium of Asphalt Pavements and Environment*. Zurich, Switzerland, 2008
- [C11] S. Swift, D. Zollinger, A. Bhasin, and A. K. Mukhopadhyay. “Unique Aspects of the Design and Construction of the Bristol Motor Speedway CRC Pavement”. In: *9th International Conference on Concrete Pavements*. San Francisco, CA, 2008, pp. 79–93
- [C12] K. L. Vasconcelos, A. Bhasin, and D. N. Little. “Calorimetric measurement of adhesion between bitumen and aggregate used in asphalt mixtures”. In: *International Symposium of Asphalt Pavements and Environment*. Zurich, Switzerland, 2008
- [C13] A. Banerjee, J. A. Prozzi, A. d. F. Smit, A. Bhasin, and J. P. Aguiar-Moya. “Curing rate for asphalt emulsions”. In: *89th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2010

- [C14] A. Motamed and A. Bhasin\*. “Investigating nonlinear response of asphalt binders at high temperature”. In: *Pavements and Materials: Testing and Modeling at Multiple Length Scales*. Los Angeles, CA: ASCE Engineering Mechanics Special Publication: 2010
- [C15] N. S. Palvadi, A. Bhasin\*, A. Motamed, and D. N. Little. “Quantifying healing based on viscoelastic continuum damage theory in fine aggregate asphalt specimen”. In: *7th RILEM International Conference on Cracking in Pavements*. Delft, The Netherlands, June 2012, pp. 1115–1123
- [C16] I. Menapace, E. Masad, D. N. Little, E. Kassem, and A. Bhasin. “Microstructural, chemical and thermal analyses of Warm Mix Asphalt”. In: *Sustainability, Eco-efficiency and Conservation in Transportation Infrastructure Asset Management*. Ed. by M. Losa and T. Papagiannakis. Pisa, Italy: CRC Press, Apr. 2014, pp. 157–168
- [C17] F. Yin, E. Arambula, D. E. Newcomb, and A. Bhasin. “Workability and coatability of foamed warm-mix asphalt”. In: *Proceedings of the International Conference on Asphalt Pavements*. Ed. by Y. R. Kim. Raleigh, North Carolina: Taylor and Francis, June 2014, pp. 721–730
- [C18] M. Guo, Y. Tan, A. Bhasin, J. Wei, X. Yang, and Y. Hou. “Using molecular dynamics to investigate interfacial adhesion between asphalt binder and mineral aggregate”. In: *4th Chinese European Workshop*. Apr. 2016
- [C19] R. Hajj, N. Sakib, A. Bhasin, A. S. Ramm, and M. C. Downer. “Relation of modified bitumen microstructure to cracking indicators”. In: *Proc. of Advances in Materials and Pavement Performance Prediction AM3P*. ed. by E. A. Masad, A. Scarpas, A. Bhasin, I. Menapace, and A. Kumar. Doha, Qatar: CRC Press, Apr. 2018, pp. 189–192
- [C20] S. Komaragiri, A. Filonzi, R. Hajj, A. Bhasin, and A. Motamed. “Three-dimensional profiler for performance evaluation of chip seals”. In: *Proc. of Advances in Materials and Pavement Performance Prediction AM3P*. ed. by E. A. Masad, A. Scarpas, A. Bhasin, I. Menapace, and A. Kumar. Doha, Qatar: Taylor & Francis, Apr. 2018, pp. 579–582
- [C21] N. Sakib, A. Bhasin, A. Ramm, and M. Downer. “Bulk microstructures in bitumen and its influence on rheology”. In: *Proc. of Advances in Materials and Pavement Performance Prediction AM3P*. ed. by E. A. Masad, A. Scarpas, A. Bhasin, I. Menapace, and A. Kumar. Doha, Qatar: Taylor & Francis, Apr. 2018, pp. 411–414

### C. Books

- [B1] D. Little, D. H. Allen, and A. Bhasin. *Modeling and Design of Flexible Pavement Materials and Structures*. Springer New York, 2017, p. 693

### D. Chapters of Books, Editor of Books

- [B2] D. N. Little and A. Bhasin. “Exploring Mechanisms of Healing in Asphalt Mixtures and Quantifying its Impact”. In: *Self Healing Materials*. Ed. by S. van der Zwaag. Dordrecht, The Netherlands: Springer, 2007, pp. 205–218
- [B3] D. N. Little, A. Bhasin, and R. L. Lytton. “Micromechanics Modeling of Performance of Asphalt Concrete Based on Surface Energy”. In: *Modeling of Asphalt Concrete Mixtures*. McGraw-Hill Professional, 2007, pp. 355–390
- [B4] Y.-R. Kim and A. Bhasin. “Advances in modeling of bituminous materials at multiple length scales”. In: *Special Issue for the International Journal of Pavement Engineering*. Taylor and Francis, 2011

- [B5] D. N. Little, A. Bhasin, and M. Darabi. “Damage healing in asphalt pavements: theory, mechanisms, measurement and modeling”. In: *Advances in Asphalt Materials, Road and Pavement Construction*. First. Cambridge, UK: Woodhead Publishing, 2015, pp. 205–242

## E. Technical Reports

- [R1] A. Chowdhury, A. Bhasin, and J. W. Button. *As-built properties of test pavements on IH-20 in Atlanta District*. Tech. rep. College Station, TX: Research Report FHWA/TX-03/0-4203-2. Texas Transportation Institute, Texas A&M University, College Station, Mar. 2003, p. 122
- [R2] A. Bhasin, J. Button, and A. Chowdhury. *Evaluation of simple performance tests on HMA mixtures from the South Central USA*. tech. rep. College Station, TX: Research Report FHWA/TX-03/9-558-1. Texas Transportation Institute, Texas A&M University, College Station, June 2003, p. 152
- [R3] A. Bhasin, J. W. Button, A. Chowdhury, and E. Masad. *Analysis of South Texas Aggregates for Use in Hot Mix Asphalt*. Tech. rep. College Station, TX: Research Report FHWA/TX-05/0-4203-4. Texas Transportation Institute, Texas A&M University, College Station, Sept. 2004, p. 76
- [R4] J. W. Button, A. Chowdhury, and A. Bhasin. *Design of TxDOT asphalt mixtures using the Superpave Gyrotory Compactor*. Tech. rep. College Station, TX: Research Report FHWA/TX-05/0-4203-1. Texas Transportation Institute, Texas A&M University, College Station, Dec. 2004, p. 130
- [R5] A. Bhasin, J. W. Button, and A. Chowdhury. *Evaluation of selected laboratory procedures and development of databases for HMA*. tech. rep. College Station, TX: Research Report FHWA/TX-05/0-4203-3. Texas Transportation Institute, Texas A&M University, College Station, Jan. 2005, p. 163
- [R6] A. Bhasin and D. N. Little. *Evaluation of effect of hydrated lime on selected asphalt mixtures*. Tech. rep. College Station, TX: Final Report for the Idaho DOT, June 2005, p. 13
- [R7] A. Bhasin and D. N. Little. *Characterizing surface properties of aggregates used in Hot Mix Asphalt*. Tech. rep. College Station, TX: Final Report No. ICAR 502-2. Texas Transportation Institute, College Station, TX., June 2006, p. 41
- [R8] A. Chowdhury, A. Bhasin, and J. W. Button. *Fibers from recycled tire as reinforcement in Hot Mix Asphalt*. Tech. rep. College Station, TX: Final Report No. SWUTC/05/167453-1, Texas Transportation Institute, Texas A & M University System, Aug. 2006, p. 58
- [R9] D. N. Little and A. Bhasin. *Using surface energy measurements to select materials for HMA pavements*. Tech. rep. Washington, D.C.: Final Report for Project 9-37. National Cooperative Highway Research Program, Transportation Research Board, Dec. 2006, p. 196
- [R10] A. Bhasin, D. N. Little, and K. L. Vasconcelos. *Pilot study for the use of lime prills in lieu of hydrated lime powder*. Tech. rep. College Station, TX: Final Report for Chemical Lime Company, Houston, TX., 2006, p. 14
- [R11] E. A. Masad, A. Bhasin, R. L. Lytton, and D. N. Little. *Implementation plan for use of surface energy measurements to select materials resistant to moisture damage*. Tech. rep. College Station, TX: Research Report No. 0-4524-P3. Texas Transportation Institute, Texas A&M University, College Station, June 2007, p. 17

- [R12] A. Bhasin, D. N. Little, and K. L. Vasconcelos. *Modification of asphalt mixtures (Hot and Warm) by the addition of zeolite*. Tech. rep. College Station, TX: Final Report to PQ Corporation, Texas Transportation Institute, Texas A&M University System, July 2007, p. 26
- [R13] J. E. Howson, E. A. Masad, A. Bhasin, V. C. Branco, E. Arambula, R. L. R. Lytton, and D. N. Little. *System for the evaluation of moisture damage using fundamental material properties*. Tech. rep. College Station, TX: Final Report No. 0-4524-1. Texas Transportation Institute, Texas A&M University System, July 2007, p. 188
- [R14] A. Bhasin, A. S. Parthasarthy, and D. N. Little. *Laboratory investigation of a novel method to accelerate healing in asphalt mixtures using thermal treatment*. Tech. rep. Austin, TX: Final Report No. SWUTC/09/476660-00005-1, Center for Transportation Research, University of Texas at Austin, Aug. 2009, p. 36
- [R15] A. Bhasin, S. Badgekar, and A. Izadi. *Quantitative Characterization of Asphalt Mixtures*. Tech. rep. Austin, TX: Final Report No. SWUTC/10/476660-00070-1, Center for Transportation Research, University of Texas at Austin, Aug. 2010, p. 56
- [R16] A. Izadi, A. Bhasin, and A. Motamed. *Designing fine aggregate mixtures to evaluate fatigue crack growth in asphalt mixtures*. Tech. rep. Final Report No. SWUTC-11-161022-1, Center for Transportation Research, University of Texas at Austin, Apr. 2011, p. 54
- [R17] C. Miller, K. L. Vasconcelos, D. N. Little, and A. Bhasin. *Investigating aspects of aggregate properties that influence asphalt mixture performance*. Tech. rep. Austin, TX: , Final Report for International Center for Aggregate Research and Federal Highway Administration Project No. DTFH61-06-C-00021, Dec. 2011, p. 83
- [R18] A. Motamed, A. Bhasin, and A. Izadi. *Fracture properties and fatigue cracking resistance of asphalt binders*. Tech. rep. Austin, TX: Final Report No. SWUTC/12/161122-1, Center for Transportation Research, University of Texas at Austin, Apr. 2012, p. 61
- [R19] Z. Arega and A. Bhasin. *Binder rheology and performance in Warm Mix Asphalt*. Tech. rep. Austin, TX: Report No. FHWA/TX-12/0-6591-2, Center for Transportation Research, The University of Texas at Austin, Aug. 2012, p. 94
- [R20] A. Banerjee, A. Smit, A. Bhasin, J. Prozzi, S. Senadheera, A. Tubb, and L. Niu. *Surface Treatment Binder Construction Toolkit*. Tech. rep. Austin, TX: Center for Transportation Research, Aug. 2012, p. 14
- [R21] Z. Arega and A. Bhasin. *Binder rheology and performance in Warm Mix Asphalt (Part - 2)*. Tech. rep. Austin, TX: Report No. FHWA/TX-12/0-6591-1, Center for Transportation Research, The University of Texas at Austin, Dec. 2012, p. 52
- [R22] P. H. Osmari, Z. Arega, and A. Bhasin. *Wetting Characteristics of Asphalt Binders at Mixing Temperatures*. Tech. rep. Austin, TX: Report No. SWUTC/13/600451-00062-1, Center for Transportation Research, The University of Texas at Austin, Oct. 2013, p. 48
- [R23] A. Motamed, S. Nyanhongo, P. Karki, and A. Bhasin. *Fatigue and Fracture Properties of Aged Binders in the Context of Reclaimed Asphalt Mixes*. Tech. rep. Austin, TX: Report No. SWUTC/14/600451-00076-1, Ceneter for Transportation Research, Dec. 2014
- [R24] D. E. Newcomb, E. Arambula, F. Yin, J. Zhang, A. Bhasin, W. Li, and Z. A. Arega. *Properties of Foamed Asphalt for Warm Mix Asphalt Applications*. Tech. rep. Washington, D.C.: Report No. 807, National Cooperative Highway Research Program, Transportation Research Board, May 2015

- [R25] R. Rodriguez, A. Bhasin, Z. Hossain, and R. Feroze. *Resistance of asphalt composites with recycled materials to resist extreme temperatures*. Tech. rep. Norman, Oklahoma: Southern Plains Transportation Center, USDOT, 2017, p. 168
- [R26] A. Filonzi, I. V. Sabaraya, R. Hajj, D. Das, N. B. Saleh, and A. Bhasin. *Evaluating the use of nanomaterials to enhance properties of asphalt binders and mixtures*. Tech. rep. Austin, TX: Report No. FHWA/TX-17/0-6854-1, Center for Transportation Research, The University of Texas at Austin, 2017, p. 109
- [R27] R. Hajj, A. Filonzi, A. Bhasin, A. Dormohammadi, C. Zhu, and V. Tandon. *Cost effective alternatives to seal coats*. Tech. rep. Austin, TX: Report No. FHWA/TX-18/0-6857-1, Center for Transportation Research, The University of Texas at Austin, 2017, p. 206
- [R28] R. Hajj, A. Filonzi, and A. Bhasin. *Improving the Performance Grade asphalt binder specification*. Tech. rep. Austin, TX: Report No. FHWA/TX-18/0-6925-1, Center for Transportation Research, The University of Texas at Austin, May 2019, p. 120

## INVITED LECTURES AND ORAL PRESENTATIONS

### A. Presentations Selected for Conferences and Symposia

NOTE - Presentations at TRB that were also selected for the Transportation Research Record are not shown below.

- [P1] J. W. Button, A. Chowdhury, and A. Bhasin. “Effects of polymer additive on simple performance testing of HMA mixtures”. In: *41st Annual Petersen Asphalt Research Conference*. Cheyenne, WY, June 2004
- [P2] A. Bhasin\* and D. N. Little. “Characterizing surface properties of aggregates used in Hot Mix Asphalt”. In: *14th Annual ICAR Symposium*. Austin, TX, May 2006
- [P3] A. Chowdhury, J. W. Button, and A. Bhasin. “By-product fibers from recycled tires for use in Hot Mix Asphalt”. In: *43rd Annual Petersen Asphalt Research Conference*. Laramie, WY, June 2006
- [P4] K. L. Vasconcelos, A. Bhasin, D. N. Little, and J. B. Soares. “Evaluation of moisture damage and healing in mastic”. In: *18th Asphalt Meeting (IBP)*. Rio de Janeiro, Brazil, Nov. 2006
- [P5] A. Chowdhury, A. Bhasin\*, and J. W. Button. “Evaluation of recycled tire fibers as reinforcement in different types of asphalt mixtures”. In: *86th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2007
- [P6] E. A. Masad, A. Bhasin, D. N. Little, and R. L. Lytton. “System approach for analysis of moisture damage in asphalt mixtures”. In: *6th International Symposium on Binder Rheology and Pavement Performance*. Tampa, FL, Apr. 2007
- [P7] V. T. C. Branco, E. A. Masad, D. N. Little, and A. Bhasin. “An improved method for the analysis of asphalt mastics using DMA”. in: *15th Annual ICAR Symposium*. Austin, TX, May 2007
- [P8] A. Bhasin and D. N. Little. “Methods to quantify interfacial adhesion and debonding in bitumen-aggregate systems in dry and wet conditions”. In: *Conference on Advanced Characterization of Pavement and Soil Engineering Materials*. Athens, Greece, June 2007
- [P9] K. L. Vasconcelos, A. Bhasin, D. N. Little, E. Berger, and J. B. Soares. “Use of lime prills in Hot Mix Asphalt”. In: *XIV Congresso Ibero-Latino Americano del Asfalto*. Havana, Cuba, Nov. 2007

- [P10] K. L. Vasconcelos, A. Bhasin, D. N. Little, and J. B. Soares. “Adhesion measurements between aggregate and asphalt”. In: *XXI Congresso de Pesquisa E Ensino em Transportes, ANPET*. Rio de Janeiro, Brazil, Nov. 2007
- [P11] K. L. Vasconcelos, A. Bhasin\*, and D. N. Little. “Influence of asphalt mixture production temperatures on the surface properties of aggregates and mixture performance”. In: *88th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2009
- [P12] A. Bhasin, D. N. Little, R. R. Bommavaram, and M. L. Greenfield. “Intrinsic healing in asphalt binders”. In: *6th International Conference on Maintenance and Rehabilitation of Pavements and Technological Control*. Torino, Italy, July 2009
- [P13] A. Banerjee, J. A. Prozzi, A. d. F. Smit, A. Bhasin, and J. P. Aguiar-Moya. “Curing Rates for Asphalt Emulsions”. In: *Transportation Research Board 89th Annual Meeting, Washington, D.C.*. Washington D.C.: National Academy of Sciences, Jan. 2010, Electronic
- [P14] Z. A. Arega, A. Bhasin\*, A. Motamed, and T. F. Turner. “Effect of Warm Mix Asphalt additives and reduced aging on rheology of asphalt binders”. In: *90th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2011
- [P15] A. Motamed and A. Bhasin. “Modeling three-dimensional effects on the viscoelastic response of asphalt binders”. In: *Annual Conference of the Engineering Mechanics Institute, ASCE*. Boston, MA, June 2011
- [P16] A. Banerjee, A. Bhasin\*, and J. A. Prozzi. “Characterizing asphalt emulsions using electrokinetic techniques”. In: *91st Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2012
- [P17] R. G. Allen, D. N. Little, and A. Bhasin. “Protocol for using AFM nano-modification to measure and enhance performance characteristics of asphalt binder”. In: *2nd International Symposium on Asphalt Pavements and Environment*. Fortaleza, Brazil, Oct. 2012
- [P18] R. G. Allen, D. N. Little, and A. Bhasin. “Structural characterization of micromechanical properties in asphalt using Atomic Force Microscopy”. In: *92nd Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2013
- [P19] R. Jahangir, R. G. Allen, D. N. Little, and A. Bhasin\*. “Obtaining nanorheology of asphalt binders using Atomic Force Microscope and modified Fischer-Cripps solution”. In: *92nd Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2013
- [P20] A. Motamed, A. Bhasin\*, and K. M. Liechti. “Using poker chip test for determining bulk modulus of asphalt binders”. In: *92nd Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2013
- [P21] P. Karki, A. Bhasin, and D. N. Little. “Experimental method to quantify overall damage and healing in asphalt composites using continuum damage approach”. In: *93rd Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2014
- [P22] R. Li, P. Karki, P. Hao, and A. Bhasin. “Effect of rock asphalts on mechanical properties of asphalt composites”. In: *93rd Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2014
- [P23] S. Sultana, A. Bhasin\*, and K. M. Liechti. “Rate and confinement effects on the tensile strength of asphalt binder”. In: *93rd Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2014

- [P24] A. Motamed, N. Sakib, and A. Bhasin\*. “Approach to Investigate Effect of Stress State on Shear Properties of Asphaltic Materials”. In: *94th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2015
- [P25] S. Sultana and A. Bhasin\*. “Effect of chemical composition on rheology and mechanical properties of asphalt binder”. In: *94th Annual Meeting, Transportation Research Board*. Jan. 2015
- [P26] A. Ramm, N. Sakib, A. Bhasin\*, and M. Downer. “Optical characterization of temperature- and composition-dependent microstructure in asphalt binders”. In: *95th Annual Meeting, Transportation Research Board*. Jan. 2016
- [P27] Z. A. Arega, J. Peterson, A. Bhasin\*, and N. Sakib. “An investigation into the continuous high-temperature grade and elastic recovery of asphalt binders measured using the creep-recovery test”. In: *95th Annual Meeting, Transportation Research Board*. Jan. 2016
- [P28] N. Sakib, A. Ramm, A. Bhasin\*, and M. Downer. “Time-Dependent variation of asphalt rheology and corresponding development of microstructures”. In: *96th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2017
- [P29] R. A. Freire, F. A. L. Babadopulos, V. T. Castelo Branco, and A. Bhasin\*. “Influence of aggregate size on the fatigue damage performance of asphalt mortars”. In: *96th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2017
- [P30] M. Guo, A. Bhasin\*, and Y. Tan. “Influence of mineral filler adsorption on rheology and performance of asphalt binders”. In: *96th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2017
- [P31] N. Sakib and A. Bhasin\*. “Estimating polarity-based distribution of bitumen using simplified chromatographic techniques”. In: *97th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2018
- [P32] J. Zhang, M. Sakhaeifar, D. N. Little, and A. Bhasin. “Characterization of crack growth rate of sulfur-extended asphalt using cyclic semi-circular bending test”. In: *97th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2018
- [P33] A. Filonzi, R. Hajj, A. Smit, and A. Bhasin. “Validating inverse stereology methods to generate two-dimensional area gradations for computational modeling”. In: *97th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2018
- [P34] A. Filonzi, R. Hajj, I. V. Sabaraya, D. Das, N. B. Saleh, and A. Bhasin. “Investigating the ability of nanomaterials to effectively disperse in asphalt binders for use as a modifier”. In: *97th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2018
- [P35] R. Hajj, A. Filonzi, A. Smit, and A. Bhasin. “Design and performance of mixes for use as an ultrathin overlay”. In: *97th Annual Meeting, Transportation Research Board*. Washington, D.C., Jan. 2018
- [P36] Z. Mascarenhas, M. D. S. Gaspar, K. L. Vasconcelos, L. L. B. Bernucci, and A. Bhasin. “Field evaluation of large stone asphalt mixture to prevent rutting on heavy traffic highways”. In: *98th Annual Meeting, Transportation Research Board*. Washington, D.C., 2019

## B. Invited Lectures and Presentations

(Presentations made in person)

- [L1] *Effect of hydrated lime and liquid anti strip on stripping of HMA mixtures*, Asphalt Technology Conference, Shreveport, Louisiana, February, 2005.



- 
- [L2] *Advanced characterization of infrastructure materials, workshop for the Polymer Technology Consortium*, Department of Mechanical Engineering, Texas A& M University, College Station, Texas, April 2007.
  - [L3] *Fundamental material properties and performance of asphalt mixtures - A few perspectives on moisture damage and healing*, Inter-Disciplinary Seminar, University of Oklahoma, Norman, Oklahoma, May 2007.
  - [L4] *Direction of research in the moisture damage area for the Asphalt Research Consortium*, FHWA Expert Task Group on Modeling, Denver, Colorado, June 2007.
  - [L5] *Methodology for the design of bases*, ICAR Technical Advisory Committee and FHWA-ICAR Technical Work Group, Alexandria, Virginia, August 2007.
  - [L6] *Affect of mixture production on aggregate properties and mixture performance*, ICAR Technical Advisory Committee and FHWA-ICAR Technical Work Group, Alexandria, Virginia, August 2007.
  - [L7] *Material properties to characterize and model moisture damage in asphalt mixtures*, 2nd International Workshop on Moisture Damage, Texas A& M University, College Station, Texas, September 2007.
  - [L8] *Modeling for moisture damage and fatigue cracking in Asphalt Research Consortium*, for FHWA, Washington D.C., January, 2008.
  - [L9] *Considerations of non-linearity and damage in dynamic test*, FHWA Expert Task Group on Modeling, Tampa, Florida, February 2008.
  - [L10] *Pilot implementation of surface energy measurements to predict moisture susceptibility of HMA*, for TxDOT SPTC, Austin, Texas, March 2008.
  - [L11] *Investigating properties of the base course on SH130 toll road*, presented at the 16th International Center for Aggregate Research Symposium, Austin, Texas, May, 2008.
  - [L12] *Analysis of experiments on moisture damage*, FHWA Expert Task Group on Modeling, Chicago, Illinois, June 2008.
  - [L13] *Research on fatigue cracking to support modeling goals for the Asphalt Research Consortium*, FHWA Expert Task Group on Modeling, Irvine, California, February 2009.
  - [L14] *Aggregate properties and asphalt mixture performance*, Presented at the 17th International Center for Aggregate Research Symposium, Austin, Texas, May 2009.
  - [L15] *Mircomechanical modeling of moisture damage in asphalt mixtures*, FHWA Expert Task Group on Fundamental Properties and Modeling, San Antonio, Texas, September 2009.
  - [L16] *Mircomechanical modeling of healing in asphalt mixtures*, FHWA Expert Task Group on Fundamental Properties and Modeling, San Antonio, Texas, September 2009.
  - [L17] *Use of surface free energy to characterize moisture damage potential of asphalt materials*, International Workshop on Continuum Mechanics, College Station, Texas, September 2009.
  - [L18] *Influence of fines on the performance of asphalt mixtures*, for W.R.Grace, Cambridge, Massachusetts, October 2009.
  - [L19] *Research on moisture damage to support modeling goals for the Asphalt Research Consortium*, FHWA Expert Task Group on Modeling, Irvine, California, February 2010.
  - [L20] *Multi-scale approach to evaluate fatigue cracking in new generation asphalt mixtures*, CTR Symposium, Austin, Texas, April 2010.

- 
- [L21] *Using synchrotron to engineer asphalt binders*, The Saskatchewan Center of Excellence for Transportation and Infrastructure, Saskatoon, CANADA, June 2010.
- [L22] *Characterizing nonlinear viscoelastic response of asphaltic response*, International Workshop on Asphalt Binders and Mastics, Madison, Wisconsin, September 2010.
- [L23] *An overview of fatigue cracking resistance in asphalt mixtures*, Honeywell Inc., Morristown, New Jersey, November 2010.
- [L24] *Time-damage relationships to describe the fracture healing process*, FHWA Expert Task Group on Modeling, Phoenix, Arizona, March 2011.
- [L25] *Effect of warm mix asphalt additives and reduced aging on the rheology of asphalt binders*, Mini-TRB for engineers at the Texas Department of Transportation, Austin, Texas, March 2011.
- [L26] *Characterizing healing and fracture in bituminous materials at different length scales*, Department of Civil Engineering, University of Nottingham, UNITED KINGDOM, June 2011.
- [L27] *Self-healing in asphalt materials*, Department of Civil Engineering, University of Nebraska, Lincoln, Nebraska, August 2011.
- [L28] *Test methods and models to evaluate self-healing*, FHWA Expert Task Group on Modeling, Fall River, Massachusetts, September 2011.
- [L29] *The growing gap between specifications and performance of asphalt binders and mixtures*, Texas Department of Transportation District Engineers Meeting, Austin, Texas, December 2011.
- [L30] *Interaction between shear and normal stresses in binders and mortars*, FHWA Expert Task Group on Modeling, Baton Rouge, Louisiana, March 2012.
- [L31] *Binder properties based on the MSCR specification*, Webinar for the members of the South Eastern Asphalt User Producer Group, Austin, TX, September 2012.
- [L32] *Mechanical models for asphalt behavior and performance – Basics of modeling*, Webinar for the Transportation Research Board, Austin, TX, October 2012.
- [L33] *Sustaining a three trillion dollar ubiquitous asset*, 4th Annual Sustainability Symposium, Austin, TX, September 2013.
- [L34] *Applied and basic research on asphalt materials and pavements*, Ergon Inc., Jackson, MS, September 2013.
- [L35] *Asphalt binder as a composite: Investigation of compositional changes on binder properties at the micro and meso length scales*, Workshop on Chemo-Mechanics of Asphalt, TU-Delft, THE NETHERLANDS, March 2014.
- [L36] *The asphalt genome project: A vision to design durable and sustainable binders*, 21st IBP National Asphalt Meeting, Rio-de-Janeiro, BRAZIL, May 2014.
- [L37] *An overview of healing in asphalt binders*, Petrobras, Rio-de-Janeiro, BRAZIL, May 2014.
- [L38] *Can we engineer a better binder?*, International Society for Asphalt Pavements, Raleigh, North Carolina, June 2014.
- [L39] *Search for the bitumen genome: An effort to design durable and sustainable asphalt binders*, The Mechanical Engineering Program, Texas A& M University at Qatar, Doha, QATAR, December 2014.

- 
- [L40] *Using electrokinetic methods to rapidly quantify emulsion stability*, Pavement Preservation and Recycling Summit (PPRS), Paris, FRANCE, February 2015.
- [L41] *Understanding the asphalt genome to engineer better asphalt binders*, Kent Seminar, University of Illinois at Urbana-Champaign, Illinois, March 2015.
- [L42] *Using asphalt mortars as a diagnostic tool to evaluate sustainable materials and technologies*, FHWA Sustainable Pavements Technical Working Group, Austin, Texas, July 2015.
- [L43] *Understanding bitumen chemistry to engineer better performing roads*, Chang'an University, Xi'an, CHINA, December 2015.
- [L44] *Teaching without a "How to" manual; Reflections from an untrained instructor*, Distinguished Faculty Workshop Series, Sanger Learning Center, The University of Texas at Austin, March 2016.
- [L45] *A closer look at the PG binder specification for asphalt mixes*, Texas Asphalt Pavement Association (TxAPA) Annual Meeting, Galveston, Texas, September 2016.
- [L46] *The asphalt genome project*, KTH Royal Institute of Technology, Stockholm, SWEDEN, September 2016.
- [L47] *Characterizing stability of asphalt emulsions using electrokinetic techniques*, International Symposium on Asphalt Emulsion Technology, Washington D.C., November 2016.
- [L48] *Sulfur extended asphalt - Past, present and future*, Symposium on safe and sustainable pavements in gulf region, Hofuf, KINGDOM OF SAUDI ARABIA, November 2016.
- [L49] *Binder testing for quality: Beyond PG methods*, South Eastern Asphalt User Producer Group Annual Meeting, Corpus Christi, Texas, November 2016.
- [L50] *Engineering the next generation of asphalt binders*, Zachry Lecture Series, College Station, Texas, May 2017.
- [L51] *Fundamental research on asphalt materials*, Harbin Institute of Technology, Harbin, CHINA, May 2017.
- [L52] *Understanding the role of composition and microstructure on the performance of asphalt binders*, Workshop for Bearing Capacity for Roads, Railways and Airfields, Athens, GREECE, June 2017.
- [L53] *Moisture damage in asphalt mixtures*, Conference on Transportation Infrastructure, University of Costa Rica and Lanamme-UCR, San Jose, COSTA RICA, July 2017.
- [L54] *Integrating science, mechanics, measurement and modeling to design the next generation of bitumen*, University of Sao Paulo, BRAZIL, August 2017.
- [L55] *Integrating science, mechanics, measurement and modeling to design the next generation of bitumen*, University of Sao Paulo, BRAZIL, August 2017.
- [L56] *Agency, industry and university partnerships: Workforce development and implementable solutions*, South Eastern Asphalt User Producer Group (SEAUPG), Jacksonville, Florida, November 2017.
- [L57] *Asphalt binder specifications in the US: Current practice and expected future trends*, Workshop on highway engineering specifications - Perspectives from China and US, Chang'an University, Xi'an, CHINA, December 2017.
- [L58] *A multi-disciplinary framework to engineer binders for pavement construction*, University of Texas at El Paso, El Paso, Texas, April 2018.

- [L59] *Physics, chemistry and mechanics of the “Dark Matter” that holds our roads together*, Keynote Lecture, RILEM Symposium on Chemo-Mechanics of Bituminous Materials, Braunschweig, GERMANY, September 2018.
- [L60] *An interdisciplinary template to engineer asphalt binders for the future*, University of Los Andes, Bogota, COLOMBIA, November 2018.
- [L61] *Physics, chemistry, and mechanics of asphalt binders*, Beijing University of Technology, Beijing, CHINA, November 2018.
- [L62] *Use of sulfur in pavements: Historical perspectives and recent studies*, King Faisal University, Al-Ahsa, SAUDI ARABIA, February 2019.
- [L63] *Using data to shape the future of a safe and efficient transportation system*, National Academy of Engineers Regional Meeting, The University of Texas at Austin, Texas, March 2019.
- [L64] *Designing the “glue” that holds our roads together*, University of Texas at San Antonio, Texas, March 2019.
- [L65] *Revisiting the Performance Grade (PG) specifications for asphalt binders*, Webinar for Transportation Consortium of South-Central States, March 2019.
- [L66] *An interdisciplinary outlook to design future materials for our roadway infrastructure*, Hong Kong Polytechnic University, HONG KONG, June 2019.
- [L67] *Shifting gears from performance prediction to material design for roadway infrastructure*, Beijing University of Technology, Beijing, CHINA, June 2019.
- [L68] *Bitumen chemistry, microstructure, and failure mechanisms to engineer asphalt binders*, International Conference on Transportation Infrastructure and Materials, Jinan, CHINA, July 2019.
- [L69] *Performance prediction to material design for our roadway infrastructure*, Kent Lecture, University of Illinois at Urbana-Champaign, Illinois, October 2019.
- [L70] *Role of computer and data sciences in defining the present and future of transportation engineering*, Keynote Lecture, CAMMSE Research Symposium, University of North Carolina, Charlotte, North Carolina, November 2019.

## GRANTS AND CONTRACTS

- [1] *Mechanisms responsible for the modification of asphalt mixtures (Hot and Warm) by synthetic zeolite*, PQ Corporation (Co-PI with Dr.Dallas Little, September 2006 to June 2007)
- [2] *Pilot implementation of surface energy measurements to predict moisture susceptibility of HMA*, Texas Department of Transportation (Research Technology and Innovation - Research Project) (Co-PI with Eyad Masad, September 2006 to August 2008)
- [3] *Improving the sustainability of asphalt pavements through developing a predictive model with fundamental material properties*, Southwest Region University Transportation Center, U.S. Department of Transportation (Co-PI with Rashid Abu-Al Rub, September 2007 to August 2008)
- [4] *Influence of production processes on aggregate properties related to mixture performance*, RD&T Activities to support FHWA Strategic Roadmap sponsored by National Stone Sand and Gravel Association (Co-PI with Dallas Little, July 2007 to August 2009)

- 
- [5] *Laboratory investigation of a novel method to accelerate healing in asphalt mixtures using thermo-mechanical treatments*, Southwest Region University Transportation Center, U.S. Department of Transportation (PI, September 2007 to August 2008)
  - [6] *Material characteristics related to self healing, fatigue cracking and moisture damage*, Asphalt Research Consortium, Federal Highway Administration (PI, August 2008 to March 2012)
  - [7] *Determining the microstructure of sand-asphalt and full asphalt mixture specimens used for the evaluation of fatigue cracking life*, Southwest Region University Transportation Center, U.S. Department of Transportation (PI, January 2009 to August 2009)
  - [8] *Evaluating the fundamental mechanisms of fatigue crack growth in Hot and Warm Mix Asphalt*, Southwest Region University Transportation Center, U.S. Department of Transportation (PI, September 2009 to August 2010)
  - [9] *Developing a fundamental understanding of the chemistry of Warm Mix Asphalt additives*, Texas Department of Transportation (Research Technology and Innovation - Research Project) (PI, September 2009 to August 2011)
  - [10] *Strength based specification for fatigue cracking resistance of asphalt binders*, Southwest Region University Transportation Center, U.S. Department of Transportation (PI, September 2010 to August 2011)
  - [11] *CAREER: Investigating molecular, physical and mechanical properties that influence macroscopic self-healing in asphalt materials*, National Science Foundation (PI, March 2011 to February 2016)
  - [12] *Developing a fundamental understanding of the chemistry of Warm Mix Asphalt additives - Investigation of newer additives*, Texas Department of Transportation (Research Technology and Innovation - Research Project) (PI, September 2011 to August 2012)
  - [13] *Evaluating the Multiple Stress Creep and Recovery (MSCR) test for performance grading of asphalt binders*, Texas Department of Transportation (PI, September 2011 to August 2012)
  - [14] *Properties of foamed asphalt for Warm Mix Asphalt applications*, National Cooperative Highway Research Program Project 9-53 (Co-PI with Dr. Wei Li, June 2012 to August 2014)
  - [15] *Material characteristics related to self healing, fatigue cracking and moisture damage*, Asphalt Research Consortium - Federal Highway Administration (PI, April 2012 to December 2014)
  - [16] *Continued evaluation of the multiple stress creep and recovery test for performance grading of asphalt binders*, Texas Department of Transportation (PI, September 2012 to August 2013)
  - [17] *Workability of asphalt binders at mixing temperatures for Hot and Warm Mix Asphalt*, Southwest Region University Transportation Center, U.S. Department of Transportation (PI, September 2012 to August 2013)
  - [18] *Micro crack growth in recycled asphalt materials*, Southwest Region University Transportation Center, U.S. Department of Transportation (PI, September 2012 to December 2013)
  - [19] *Faculty-in-Industry GOALI supplement for CAREER grant*, National Science Foundation, (PI, September 2013 to December 2013)
  - [20] *Resistance of asphalt mixes with recycled materials to withstand extreme temperatures*, Southern Plains Transportation Institute, U.S. Department of Transportation (PI, with Arkansas State University as partner, October 2014 to September 2016)

- 
- [21] *Cost effective alternatives to seal coats*, Texas Department of Transportation (Research Technology and Innovation - Research Project) (UT El Paso as partner, February 2015 to September 2017)
  - [22] *Using carbon nanotubes to improve binder performance*, Texas Department of Transportation (Research Technology and Innovation - Research Project) (co-PI with Dr. N Saleh and UT Pan American as partner, February 2015 to December 2016)
  - [23] *Evaluating properties of asphalt binders*, Texas Department of Transportation (PI, February 2015 to August 2015)
  - [24] *Creating a freshman project for experiential learning and context to improve conceptual and deeper learning in sophomore through senior years*, Curriculum Innovation Grant, Center for Teaching and Learning, UT Austin (co-PI with Dr. S Boyles and J Marshall, June 2015 to May 2016)
  - [25] *Evaluating properties of asphalt binders*, Texas Department of Transportation (PI, September 2015 to August 2016)
  - [26] *Investigating Improvement of Sulfur Extended Asphalt*, Saudi Aramco Chair, King Faisal University, Saudi Arabia (PI, with Univ. of Illinois Urbana-Champaign and Texas A& M University as partners, January 2016 to December 2018)
  - [27] *Asphalt Graduate Research Fellowship*, Ergon Inc. (PI, December 2015 to November 2016)
  - [28] *Improving the Performance Graded Asphalt Binder Specification*, Texas Department of Transportation (Research Technology and Innovation - Research Project)(PI, September 2016 to December 2018)
  - [29] *Monitoring Binder and Asphalt Mixture Quality*, Texas Department of Transportation (PI, October 2016 to August 2017)
  - [30] *Seal Coat Monitoring and Support*, Texas Department of Transportation (PI, January 2017 to August 2017)
  - [31] *Revised Allowable Maximum Recycled Asphalt Binder Ratio Specification*, Texas Department of Transportation (Research Technology and Innovation - Research Project)(PI, June 2017 to August 2019)
  - [32] *Evaluate the Use of Percent Within Limits as Payment Adjustment Factor for Placement of Asphalt Mixes*, Texas Department of Transportation (Research Technology and Innovation - Research Project) (co-PI with Dr. Zhanmin Zhang), September 2017 to August 2019)
  - [33] *Seal Coat Monitoring and Support*, Texas Department of Transportation (PI, September 2017 to December 2018)
  - [34] *Monitoring Binder and Asphalt Mixture Quality*, Texas Department of Transportation (PI, September 2017 to August 2018)
  - [35] *Asphalt Graduate Research Fellowship*, Ergon Inc. (PI, December 2016 to November 2017)
  - [36] *SiteManager Database and Monitoring Binder and Asphalt Mixture Quality*, Texas Department of Transportation (PI, September 2018 to August 2019)
  - [37] *Asphalt Graduate Research Fellowship*, Ergon Inc. (PI, December 2018 to November 2019)
  - [38] *Evaluating Friction Resistance of Treated Concrete Surfaces*, Golden Triangle Construction, Pennsylvania Concrete Pavement Association (PI, April 2019 to August 2020)

- [39] *Use of locally produced recycled polymer as asphalt binder modifier for roads in Qatar*, Qatar National Research Foundation / TAMU-Q (PI, June 2019 to May 2022)
- [40] *Capitalizing on Construction Records to Identify Relationships between Construction and Long-Term Project Performance*, Texas Department of Transportation (Research Technology and Innovation - Research Project) (co-PI with Dr. Zhanmin Zhang), September 2019 to November 2022)
- [41] *Implementation of improved binder performance test for cracking resistance*, Texas Department of Transportation (PI, September 2019 to August 2021)
- [42] *SiteManager Database and Monitoring Binder and Asphalt Mixture Quality*, Texas Department of Transportation (PI, September 2019 to August 2020)
- [43] *Balanced Mix Design System for Superpave Hot-Mix Asphalt Mixtures*, Texas Department of Transportation (PI, September 2019 to August 2020)

## Summary of Grants and Contracts

Total value	USD >6 Million (individual share)
-------------	-----------------------------------

## GRADUATE STUDENTS SUPERVISE (UT AUSTIN ONLY)

### Doctoral Supervisions Completed

- [1] Arash Motamed (Ph.D., December 2012) *Constitutive modeling of viscoelastic behavior of bituminous materials*.
- [2] Zelalem Arega (Ph.D., August 2014) *Characteristics of foamed asphalt binders for warm mix applications* (co-supervised with Dr. Wei Li).
- [3] Sharmin Sultana (Ph.D., August 2014) *Tensile strength of asphalt binders and influence of chemical composition on binder rheology and strength*.
- [4] Pravat Karki (Ph.D., August 2014) *An integrated approach to measure and model fatigue damage and healing in asphalt composites*.
- [5] Ali AlQarni (Ph.D., December 2017) *Optimizing the use of aggregate resources in concrete pavements* (co-supervised with Dr. David Fowler).
- [6] Nazmus Sakib (Ph.D., December 2018) *Towards a better understanding of bitumen chemistry, microstructure, and rheology*.

### Masters Supervisions Completed

- [1] Sundeep Palvadi (M.S., August 2011) *Measurement of material properties related to self-healing based on continuum and micromechanics approach*.
- [2] Anoosha Izadi (M.S., May 2012) *Engineering properties of bituminous composites based on fabric tensor*.
- [3] Nazmus Sakib (M.S., May 2014) *Response of asphalt matrix under multi-axial stress state*.
- [4] Ramez Hajj (M.S., May 2016) *Fatigue characterization of asphalt binders by thin film poker chip test*.
- [5] Rachel Hure (M.S., May 2017) *Non-standard metrics to screen Performance Graded asphalt binders*.

- [6] Rogelio Rodriguez (M.S., August 2017) *Low temperature and relaxation and tensile strength of viscoelastic solids.*
- [7] SangKi Lee (M.S., May 2018) *Evaluation of asphalt binder and mixture properties that incorporate reclaimed asphalt pavement.*

### **Doctoral Supervisions in Progress**

- [1] Angelo Filonzi (Ph.D., In Progress since January 2015; passed qualifying exam September 2017) *Evaluating binder properties to promote the use of reclaimed asphalt pavements.*
  - [2] Ramez Hajj (Ph.D., In Progress since May 2016; passed qualifying exam September 2017) *Understanding the origins of crack nucleation and growth in viscoelastic solids.*
  - [3] Kiran Mohanraj (Ph.D., In Progress since August 2016; passed qualifying exam September 2017) *Inter-relationship between binder modification, microstructure, fatigue, and fracture properties of asphalt binders.*
  - [4] Satyavati Komaragiri (Ph.D., In Progress since January 2017; passed qualifying exam April 2018) *Models to simulate aggregate packing during compaction in asphalt composites.*
  - [5] SangKi Lee (Ph.D., In Progress since August 2019) *TBD.*
-