

**Andrew F. Braham, Ph.D., P.E.**

Associate Professor, University of Arkansas, Department of Civil Engineering  
4190 Bell Engineering Center, Fayetteville, AR 72701 USA

Phone: +1.479.575.6028 Fax: +1.479.575.7168

Email: [afbraham@uark.edu](mailto:afbraham@uark.edu) Website (QR code): [www.andrewbraham.com](http://www.andrewbraham.com)

**Education**

University of Illinois, Urbana, IL	Civil Engineering	Ph.D., 2008
University of Wisconsin, Madison, WI	Civil Engineering	M.S., 2002
University of Wisconsin, Madison, WI	Civil Engineering	B.S., 2000

**Appointments**

Associate Professor, University of Arkansas, Fayetteville, AR	08/2016 – current
Visiting Associate Professor, UPC, Barcelona, Spain	01/2018 – 06/2018
Assistant Professor, University of Arkansas, Fayetteville, AR	11/2010 – 08/2016
Postdoctoral Research Fellow, Southeast University, Nanjing, China	02/2009 – 11/2010
Graduate Research Assistant, Illinois Leadership Center, Urbana, IL	08/2007 – 05/2008
Field and Research Engineer, Koch Materials Company	06/2002 – 11/2004

**Licensure**

Professional Engineer (#15638), State of Arkansas	05/2013 – present
Engineer-In-Training (#1510240-500), State of Wisconsin	11/2000 – 11/2010

**Books and Special Publications**

1. Braham, A. (2020). [Achieving Quality of Asphalt Emulsion \(Certificate 4\)](#). In *Pavement Maintenance and Rehabilitation Professional Development Courses*, University of Arkansas, Fayetteville, AR, USA.
2. Braham, A. (2020). [A Review of Asphalt Emulsion Papers in the Journal of the Association of Asphalt Paving Technologists, 1937-1970](#). University of Arkansas, Fayetteville, AR, USA.
3. Underwood, S., Braham, A. (2019). Fatigue or Not Fatigue, That is the Question. A White Paper. Posted free for download on ResearchGate, [doi: 10.13140/RG.2.2.13898.41921/1](https://doi.org/10.13140/RG.2.2.13898.41921/1).
4. Braham, A. (2018). [Manufacturing of Asphalt Emulsions \(Certificate 3\)](#). In *Pavement Maintenance and Rehabilitation Professional Development Courses*, University of Arkansas, Fayetteville, AR, USA.
5. Braham, A. (2017). [Fundamentals of Sustainability in Civil Engineering](#), CRC Press, First Edition, ISBN: 978-1498775120.
6. Braham, A. (2017). [Applications of Asphalt Emulsions \(Certificate 2\)](#). In *Pavement Maintenance and Rehabilitation Professional Development Courses*, University of Arkansas, Fayetteville, AR, USA.
7. Braham, A. (2017). [Introduction to Asphalt Emulsions \(Certificate 1\)](#). In *Pavement Maintenance and Rehabilitation Professional Development Courses*, University of Arkansas, Fayetteville, AR, USA.
8. [State of the Art and Practice in Fatigue Cracking Evaluation of Asphalt Concrete Pavements](#), Association of Asphalt Paving Technologists, Version 1.0. Editors: A. Braham and S. Underwood, October 2016.

**Peer-Reviewed Publications**

1. Yang, S., Braham, A., Hossain, Z. Relationship between Rank of Laboratory Testing Results and Field Performance of Asphalt Interstate Pavement, *Journal of Materials in Civil Engineering*, 32(9), September 2020, [doi: 10.1061/\(ASCE\)MT.1943-5533.0003322](https://doi.org/10.1061/(ASCE)MT.1943-5533.0003322).
2. Casillas, S., Braham, A. Quantifying effects of laboratory curing conditions on workability, compactability, and cohesion gain of cold in-place recycling. *Road Materials and Pavement Design*, published online April 2020, [doi: 10.1080/14680629.2020.1753101](https://doi.org/10.1080/14680629.2020.1753101).
3. Kiihnl, L., Braham, A. Exploring the influence of pavement preservation, maintenance, and rehabilitation on Arkansas' highway network: an education case study. *International Journal of Pavement Engineering*, published online June 2019, [doi: 10.1080/10298436.2019.1628960](https://doi.org/10.1080/10298436.2019.1628960).
4. Casillas, S., Morales, A., Braham, A. Evaluating Aggregate Size Effects on Dynamic Modulus Using Gray Scale Analysis, *Journal of the Association of Asphalt Paving Technologists*, Vol. 88, 2019, pp. 687-717.
5. Yeung, E., Braham, A. The Influence of Time After Crushing for Cold In-place Recycling on Compaction and Raveling, *Transportation Research Record: Journal of the Transportation Research Board*, Vol 2673(3), 2019, pp. 419-426, [doi: 10.1177/0361198119834560](https://doi.org/10.1177/0361198119834560).
6. Espinosa, L., Wills, J., Caro, S., Braham, A. Influence of the morphology of the cracking zone on the fracture energy of HMA materials, *Materials and Structures*, 52:35, 2019, [doi: 10.1617/s11527-019-1334-0](https://doi.org/10.1617/s11527-019-1334-0).
7. Wills, J., Caro, S., Braham, A. Influence of Material Heterogeneity in the Fracture of Asphalt Mixtures, *International Journal of Pavement Engineering*, 20(7), 2019, pp. 747-760, [doi: 10.1080/10298436.2017.1334461](https://doi.org/10.1080/10298436.2017.1334461).
8. Messadi, T., Newman, W., Braham, A., Nutter, D. Cyber-Innovation in the STEM Classroom, a Mixed Reality Approach, *Creative Education*, Vol. 9, 2018, pp. 2385-2393, [doi: 10.4236/ce.2018.915179](https://doi.org/10.4236/ce.2018.915179).
9. Smith, S., Braham, A., Hernandez, S., Kent, J. Development of a cost estimation framework for potential transload facilities, *Transportation Research Record: Journal of the Transportation Research Board*, Vol. 2672 (9), December 2018, pp. 24-34, [doi: 10.1177/0361198118774690](https://doi.org/10.1177/0361198118774690).
10. Yeung, E., Braham, A. Evaluation and Compaction of Laboratory-Produced Recycled Asphalt Pavement in Cold In-Place Recycling, *Journal of Transportation Engineering, Part B: Pavements*, 144(3), 2018, [doi: 10.1061/JPEODX.0000054](https://doi.org/10.1061/JPEODX.0000054).
11. Smith, S., Braham, A. Comparing layer types for the use of PavementME for asphalt emulsion Full Depth Reclamation design, *Construction and Building Materials*, Vol. 158, 2018, pp. 481–489, [doi: 10.1016/j.conbuildmat.2017.10.054](https://doi.org/10.1016/j.conbuildmat.2017.10.054).
12. Braham, A., Aschenbrener, T., Hossain, Z. Forensic Investigation of Ten Asphalt Interstate Pavements with Varying Performance in Arkansas, *Journal of Transportation Engineering, Part B: Pavements*, 144(2), 2018, [doi: 10.1061/JPEODX.0000051](https://doi.org/10.1061/JPEODX.0000051).
13. Yang, S., Braham, A. R-Curves Characterisation Analysis for Asphalt Concrete, *International Journal of Pavement Engineering*, 19(2), 2018, pp. 99-108, [doi: 10.1080/10298436.2016.1172467](https://doi.org/10.1080/10298436.2016.1172467).
14. Wang, W., Zhang, A., Wang, K., Braham, A., Qiu, S. Pavement Crack Width Measurement Based on Laplace's Equation for Continuity and Unambiguity, *Computer-Aided Civil and Infrastructure Engineering*, Vol. 33, 2018, pp. 110-123, [doi: 10.1111/mice.12319](https://doi.org/10.1111/mice.12319).

15. Messadi, T., Newman, W., Braham, A., Nutter, D. Immersive Learning for Sustainable Building Design and Construction Practices, *Journal of Civil Engineering and Architecture*, Vol. 11, 2017, pp. 841-852, [doi: 10.17265/1934-7359/2017.09.003](https://doi.org/10.17265/1934-7359/2017.09.003).
16. Yang, S., Braham, A. Influence of binder grade, gradation, temperature, and loading rate on R-curve of asphalt concrete, *Construction and Building Materials*, Vol. 154, November 2017, pp. 780-790, [doi: 10.1016/j.conbuildmat.2017.08.019](https://doi.org/10.1016/j.conbuildmat.2017.08.019).
17. Smith, S., Henrichs, C., Braham, A. Exploring Compaction Methods for Laboratory Performance of Full Depth Reclamation, *Journal of Testing and Evaluation*, 45(2), March 2017, pp. 484-496, [doi: 10.1520/JTE20150229](https://doi.org/10.1520/JTE20150229).
18. Yang, S., Braham, A., Underwood, S., Hanz, A., Reinke, G. Correlating Field Performance to Laboratory Dynamic Modulus from Indirect Tension and Torsion Bar, *Road Materials and Pavement Design*, Vol. 18, Issue S1, January 2017, pp. 104-127, [doi: 10.1080/14680629.2016.1267438](https://doi.org/10.1080/14680629.2016.1267438).
19. Ryan, J., Braham, A. The Characterization of Foamed Asphalt Cement Using a Rotational Viscometer, *International Journal of Pavement Engineering*, 18(8), 2017, pp. 744-752, [doi: 10.1080/10298436.2015.1122191](https://doi.org/10.1080/10298436.2015.1122191).
20. Yeung, E., Braham, A., Barnat, J. Exploring the Effect of Asphalt-Concrete Fabrication and Compaction Location on Six Compaction Metrics, *Journal of Materials in Civil Engineering*, 28(12), December 2016, [doi: 10.1061/\(ASCE\)MT.1943-5533.0001682](https://doi.org/10.1061/(ASCE)MT.1943-5533.0001682).
21. Jackson, A., Braham, A. Reducing Sample Size for Cold In-place Recycling Design and Testing, *Journal of Testing and Evaluation*, 44(4), July 2016, pp. 1698-1705, [doi: 10.1520/JTE20140159](https://doi.org/10.1520/JTE20140159).
22. Yang, S., Braham, A., Wang, L., Wang, Q. Influence of Aging and Moisture on Laboratory Performance of Asphalt Concrete, *Construction and Building Materials*, Vol. 115, July 2016, pp. 527-535, [doi: 10.1016/j.conbuildmat.2016.04.063](https://doi.org/10.1016/j.conbuildmat.2016.04.063).
23. Braham, A. Comparing Life Cycle Cost Analysis of Full Depth Reclamation versus Traditional Pavement Maintenance and Rehabilitation Strategies, *Transportation Research Record: Journal of the Transportation Research Board*, Jan 2016, Vol. 2573, pp. 49-59, [doi: 10.3141/2573-07](https://doi.org/10.3141/2573-07).
24. Hill, R., Braham, A. Quantifying Timing of Return to Traffic for Asphalt Cement Based Full Depth Reclamation Mixtures in the Laboratory, *Journal of Testing and Evaluation*, 44(1), January 2016, pp. 555-564, [doi: 10.1520/JTE20130288](https://doi.org/10.1520/JTE20130288).
25. Braham, A., Howard, I., Barham, J., and Cox, B. Characterising emulsion effects on aged asphalt concrete surfaces using Bending Beam Rheometer mixture beams, *International Journal of Pavement Engineering*, 16(7), 2015, pp. 620-631, [doi: 10.1080/10298436.2014.943214](https://doi.org/10.1080/10298436.2014.943214).
26. Braham, A., Steger, R., Lynn, T., and Pyle, R. Characterizing Compactability of High RAP and Warm Mix Asphalt Mixtures in the Superpave Gyratory Compactor, *Journal of Testing and Evaluation*, 43(3), May 2015, pp. 535-543, [doi: 10.1520/JTE20130319](https://doi.org/10.1520/JTE20130319).
27. Milburn, A. B., Braham, A., and McClinton, J. Integrating qualitative components in quantitative courses using Facebook. *Interdisciplinary Journal of E-Learning and Learning Objects*, Vol. 10, 2014, pp. 229-246, [doi: 10.28945/2071](https://doi.org/10.28945/2071).
28. Gao, L., Ni, F., Braham, A., Luo, H. Mixed-Mode cracking behavior of cold recycled mixes with emulsion using Arcan configuration, *Construction and Building Materials*, Vol. 55, March 2014, pp. 415-422, [doi: 10.1016/j.conbuildmat.2013.12.079](https://doi.org/10.1016/j.conbuildmat.2013.12.079).
29. Ni, F., Yang, S., Zhu, Y., and Braham, A. Capturing mixed-mode cracking of asphalt concrete using the Arcan test, *International Journal of Pavement Engineering*, 15(1), January 2014, pp. 43-50, [doi: 10.1080/10298436.2013.790969](https://doi.org/10.1080/10298436.2013.790969).

30. Braham, A., Mudford, C. The Development of Master Fracture Curves for Asphalt Concrete. *Journal of Materials in Civil Engineering*, Vol. 25, No. 11, November 2013, pp. 1631-1637, [doi: 10.1061/\(ASCE\)MT.1943-5533.0000724](https://doi.org/10.1061/(ASCE)MT.1943-5533.0000724).
31. Braham, A., Howard, I., and Barham, J. Exploration of a Performance Test for Emulsion Treated Asphalt Surfaces, *Journal of Testing and Evaluation*, 41(2), March 2013, [doi: 10.1520/JTE20120076](https://doi.org/10.1520/JTE20120076).
32. Braham, A., Zofka, A., Li, X., Ni, F. Exploring the Reduction of Laboratory Testing for the Cohesive Zone Model for Asphalt Concrete. *International Journal of Pavement Engineering*, 13(4), August 2012, pp. 350-359, [doi: 10.1080/10298436.2011.595792](https://doi.org/10.1080/10298436.2011.595792).
33. Dave, E.V., Braham, A.F., Buttlar, W.G., Paulino, G.H. Development of a Flattened Indirect Tension Test for Asphalt Concrete. *Journal of Testing and Evaluation*, 39(3), 2011, [doi: 10.1520/JTE103084](https://doi.org/10.1520/JTE103084).
34. Braham, A.F., Buttlar, W.G., Ni, F. Laboratory Mixed-Mode Cracking of Asphalt Concrete Using the Single-Edge Notch Beam. *Road Materials and Pavement Design*, Vol 11/4, 2010, pp. 947-968, [doi: 10.1080/14680629.2010.9690314](https://doi.org/10.1080/14680629.2010.9690314).
35. Braham, A.F., Buttlar, W.G., Clyne, T.R., Marasteanu, M.O., Turos, M.I. The Effect of Long-Term Laboratory Aging on Asphalt Concrete Fracture Energy. *Journal of the Association of Asphalt Paving Technologists*, Vol. 78, 2009, pp. 417-454.
36. Zofka, A., Braham, A.F. Comparison of Low-Temperature Field Performance and Laboratory Testing Using Ten Test Sections in Midwest. *Transportation Research Record: Journal of the Transportation Research Board*, No. 2127, Transportation Research Board of the National Academies, Washington, D.C., 2009, pp. 107-114, [doi: 10.3141/2127-13](https://doi.org/10.3141/2127-13).
37. Li, X., Braham, A.F., Marasteanu, M.O., Buttlar, W.G., Williams, C. Effect of Factors Affecting Fracture Energy of Asphalt Concrete at Low Temperature, *International Journal of Road Material and Pavement Design*, Vol. 9, Special Issue/2008, pp. 397-416, [doi: 10.1080/14680629.2008.9690176](https://doi.org/10.1080/14680629.2008.9690176).
38. Wagoner, M.P., Braham, A.F. Anisotropic Behavior of Hot Mix Asphalt At Low Temperatures. *Transportation Research Record: Journal of the Transportation Research Board*, No. 2057, Transportation Research Board of the National Academies, Washington, D.C., 2008, pp. 83-88, [doi: 10.3141/2057-10](https://doi.org/10.3141/2057-10).
39. Braham, A.F., Buttlar, W.G., Marasteanu, M.O. Effect of Binder Type, Aggregate, and Mixture Composition on the Fracture Energy of Hot-Mix Asphalt in Cold Climates. *Transportation Research Record: Journal of the Transportation Research Board*, No. 2001, Transportation Research Board of the National Academies, Washington, D.C., 2007, pp. 102-109, [doi: 10.3141/2001-12](https://doi.org/10.3141/2001-12).

### Other Publications

1. Braham, A., Kadrmas, A., Ishee, M. Developing an Online, On-Demand Certificate Program for Asphalt Emulsions, *18<sup>th</sup> AAPA International Flexible Pavement Conference and Exhibition*, Australian Asphalt Pavement Association, Sydney, Australia, August 18-21, 2019.
2. Braham, A. Exploring Alternative Methods of Environmental Analysis, Proceedings of the *Pavement Life-Cycle Assessment Symposium*, Champaign, IL, April 12-13, 2017, pp.103-110.
3. Yang, S., Braham, A., Underwood, S., Hanz, A., Reinke, G. Correlating Field Performance to Laboratory Dynamic Modulus from Indirect Tension and Torsion Bar, *Association of Asphalt Paving Technologists*, Vol. 85, 2016, pp. 131-162.
4. Braham, A. Program Draws Students to Preservation, *Pavement Preservation Journal*, Summer 2016, pp. 40-41.

5. Yang, S., Braham, A., Chowdhury, N., Hossain, Z. Linking the Field and Lab Performance of Interstate Pavements, *International Symposium on Systematic Approaches to Environmental Sustainability in Transportation*, August 2-5, Fairbanks, AK, 2015, pp. 19-27.
6. Chowdhury, N., Hossain, Z., Yang, S., Braham, A. A Framework for Premature Pavement Distress Evaluation, *International Foundations Congress and Equipment Expo (IFCEE) 2015*, March 17-21, San Antonio, TX, 2015, pp. 2492-2501.
7. Braham, A., Bennett, A., McClinton, J. Using LinkedIn in the Classroom, *ASEE Midwest Section 2013 Annual Conference*, Salina, KS, September 18-20, 2013.
8. Yang, S., Braham, A. The Investigation of R-Curves of Asphalt Concrete, *Airfield and Highway Pavement 2013: Sustainable and Efficient Pavements*, Edited by Imad L. Al-Qadi and Scott Murrell, Los Angeles, CA, June 9-12, 2013, pp. 1064-1074.
9. Hill, R., Braham, A. A Simple Field Test to Determine Return to Traffic on Full Depth Reclamation & Cold In-Place Recycling Projects. *International Symposium of Asphalt Emulsion Technology*, ISAET, Arlington, VA, October 10-12, 2012.
10. Hill, R., Braham, A. A Review of Full Depth Reclamation Asphalt Emulsion Mixtures. *International Symposium of Asphalt Emulsion Technology*, ISAET, Arlington, VA, October 10-12, 2012.
11. Garbacz, A., Braham, A. Identifying Fracture Energy Components of Asphalt Concrete. Proceedings of the *12th International Symposium, Advanced Technologies in Asphalt Pavements*, Seoul, South Korea, July 5-6, 2012, pp. 101-112.
12. Yang, S., Ryan, J., Braham, A. Investigating Resistance Curves of Asphalt Concrete Using Digital Image Correlation. Proceedings of the *12th International Symposium, Advanced Technologies in Asphalt Pavements*, Seoul, South Korea, July 5-6, 2012, pp. 91-100.
13. Braham, A., Mudford, C. Comparing the Slope of Load/Displacement Fracture Curves of Asphalt Concrete. *7th International Conference on Cracking in Pavements*, Delft, Amsterdam, June 20-22, pp. 997-1006, 2012.
14. Braham, A., Ni, F., Yang, S. An Introduction of the Arcan Testing Configuration for Mixed-Mode Cracking in Asphalt Concrete. *Proceedings of the 11th International Conference on Asphalt Pavements (ISAP)*, Nagoya, Japan, August 1-6, 2010.
15. Braham, A.F. Warm Mix Asphalt - A Brief Overview. White paper for *Airport Pavement Design and Management Summit 2010*, Singapore, January 27-28, 2010.
16. Braham, A.F., Ni, F., Zhang, M. Prediction of Rutting in China. *Proceedings of the 13th International Flexible Pavements Conference*, Surfers Paradise, Australia, October 12-14, 2009.
17. Braham, A.F., Ni, F., Zhang, M. Abstract of Prediction of Rutting in China. *Roads, Australia's Road Management and Construction Magazine*, October/November 2009, pp. 28-30.
18. Braham, A.F., Buttlar, W.G. Mode II Cracking in Asphalt Concrete. *Advanced Testing and Characterization of Bituminous Materials*, Rhodes, Greece, Eds. Loizos, PatrI, Scarpas, and Al-Qadi, CRC Press Taylor and Francis Group, New York, ISBN: 978-0-415-55854-9, Vol. 2, 2009, pp.699-706.
19. Braham, A.F., Peterson, C.V., Buttlar, W.G. Mixed-Mode Cracking in Asphalt Concrete. *Advanced Testing and Characterization of Bituminous Materials*, Rhodes, Greece, Eds. Loizos, PatrI, Scarpas, and Al-Qadi, CRC Press Taylor and Francis Group, New York, ISBN: 978-0-415-55854-9, Vol. 2, 2009, pp.785-794.
20. Braham, A.F., Dave, E.V., Buttlar, W.G., Paulino, G.H. Analysis of Creep Properties using a Flattened Indirect Tension Test for Asphalt Concrete. *Proceedings of the Eighth International Conference on Creep, Shrinkage and Durability of Concrete and Concrete*



- Structures*, CRC Press Taylor and Francis Group, London, ISBN: 978-0-415-48508-1, 2008, pp 787-792.
21. Dave, E.V., Braham, A.F., Buttlar, W.G., Paulino, G.H., Zofka, A. Integration of Laboratory Testing, Field Performance Data, and Numerical Simulations for the Study of Low-Temperature Cracking. *Proceedings of the 6th RILEM International Conference on Cracking in Pavements*, Chicago, USA, Eds. Al-Qadi, Scarpas, and Loizos, CRC Press Taylor and Francis Group, New York, ISBN: 978-0-415-4757-54, 2008, pp.369-378.
  22. Braham, A.F., Wagoner, M.P., Buttlar, W.G. Effect of Hot Mix Asphalt Pavement Depth on Fracture Energy. *Proceedings of the 8th International Symposium on Cold Region Development*, Tampere, Finland, September 25-27, 2007.
  23. Dave, E.V., Braham, A.F., Buttlar, W.G., Paulino, G.H. Development of a Flattened Indirect Tension Test for Asphalt Concrete. *Proceedings of the SEM Annual Conference and Exposition on Experimental and Applied Mechanics*, Springfield, MA, Vol. 2, 2007, pp. 1088-1097.
  24. Braham, A. Safely Cycling on Campus. *Technograph*, Illini Media, Vol. 122, Fall, 2006, pp. 17-18.
  25. Braham, A. How Do Traffic Lights Know You Are There? *Technograph*, Illini Media, Vol. 121, Summer, 2006, p. 10.
  26. Braham, A. Building Towards a Greener Campus. *Technograph*, Illini Media, Vol. 121, Spring, 2006, pp. 16-17.
  27. Braham, A. Illinois Center for Transportation: A New Beginning. *Technograph*, Illini Media, Vol. 121, Winter, 2005, pp. 12-15.
  28. Braham, A. State of the Art. *Technograph*, Illini Media, Vol. 121, Fall, 2005, pp. 5-6.
  29. Snyder, T., Braham, A., Bahia, H., Tikalsky, P. The Use of Blended Recycled Foundry Sand in Hot Mix Asphalt. *American Foundrymen's Society Transactions*, Vol. 111, 2003, pp. 473-488.
  30. Miller, E., Bahia, H.U., Benson, C., Khatri, A., Braham, A. Utilization of Waste Foundry Sand in Hot Mix Asphalt Mixtures. *American Foundrymen's Society Transactions*, Vol. 109, 2001, pp. 1393-1408.

### Final Reports

1. Hossain, Z., Braham, A., Baumgardner, G. Performance of Asphalts Modified with Polyphosphoric Acid, Final report for *Arkansas Department of Transportation*, TRC 1501, November 2017.
2. Braham, A., Hernandez, S., Kent, J., Asborn, M., Smith, S. Locating Transload Facilities to Ease Highway Congestion and Safeguard the Environment, Final report for *Arkansas Department of Transportation*, TRC 1608, September 2017.
3. Braham, A., Hossain, Z., Yang, S., Chowdhury, N. Evaluating Performance of Asphalt Pavement Based on Data Collected During IRP, Final report for *Arkansas State Highway and Transportation Department*, TRC 1404, June 2015.
4. Braham, A., Henrichs, C. Examination of Full-Depth Reclamation Techniques for Shale Areas Across Arkansas, Final report for *Arkansas State Highway and Transportation Department*, TRC 1405, June 2015.
5. Braham, A., Caro, S. Application of Stochastically Generated Material Properties in Numerical Simulations of Advanced Performance Testing. Final report for *National Science Foundation, OISE - Catalyzing New Intl Collab*, proposal number 1321235, September 2014.

6. Yang, S., Braham, A. Research of Evotherm Warm Mix Technology and RAP Usage for Hebei Province. Final report for *Hebei Province, China*, March 2014 (in Chinese and English).
7. Braham, A. Visit to University of Florida. Final report for *2013 SEC Travel Grant Program*, March 2013.
8. Hill, R., Jackson, A., Smith, S. Braham, A. Exploring Different Forms of Base Stabilization. Final report for *Mack-Blackwell Rural Transportation Center*, MBTC-3033, July 2012.
9. Braham, A. The Next Generation of Data Collection: A Collaboration Between the US and China. Final report for *National Science Foundation, OISE - Catalyzing New Intl Collab*, proposal number 1132625, July 2012.
10. Braham, A. Development of the Arcan Test Configuration to Test Mixed-Mode Characteristics of Asphalt Concrete. *Postdoctoral Research Dissertation*, Southeast University, Nanjing, China, 2010.
11. Braham, A. Mixed-Mode Fracture Characteristics of Asphalt Concrete Using the Arcan Configuration. Final report for *National Natural Science Foundation of China*, grant number 50950110342, September 2010.
12. Braham, A.F. Fracture Characteristics of Asphalt Concrete in Mode I, Mode II, and Mixed Mode. *Ph.D. Dissertation*, University of Illinois at Urbana-Champaign, Urbana, IL, 2008.
13. Marasteanu, M., Zofka, A., Turos, M., Li, X., Velasquez, R., Li, X., Buttlar, W., Paulino, G., Braham, A., Dave, E., Ojo, J., Bahia, H., Williams, C., Bausano, J., Gallistel, A., McGraw, J. Investigation of Low Temperature Cracking in Asphalt Pavements. Final report for *National Pooled Fund Study 776*, MN/RC 2007-43, October 2007.
14. Braham, A. The Use of Blended Recycled Foundry Sand in Hot Mix Asphalt. *M.S. Thesis*, University of Wisconsin, Madison, WI, 2002.

### Invited Talks

1. Invited presentation at ARRA Semi-Annual Meeting. Presented "RoadResource.org: Let's Scratch Below the Surface." Monterey, CA, October 22, 2019.
2. Invited presentation at Warren Lecture Series, University of Minnesota – Twin Cities. Presented "Taking Care of our Roads: Pavement Maintenance and Rehabilitation." Minneapolis, MN, November 30, 2018 (<https://www.youtube.com/watch?v=5CCbjpT7IL0>).
3. Invited presentation at ARRA Semi-Annual Meeting. Presented "Life Cycle Cost Analysis of Full Depth Reclamation versus Traditional Maintenance and Rehabilitation Strategies." Minneapolis, MN, October 18, 2017 (<https://www.youtube.com/watch?v=QIWRGuGp3J4>).
4. Invited presentation at Rocky Mountain Asphalt Conference. Presented "Life Cycle Cost Analysis of Full Depth Reclamation versus Traditional Maintenance and Rehabilitation Strategies." Denver, CO, February 22, 2017.
5. Invited presentation at Transportation Research Congress Young Investigator Forum. Presented "Transportation Materials and Sustainability." Beijing, China, June 7, 2016.
6. Invited lecture to Introduction to Soil Mechanics course at Seoul National University of Science & Technology. Presented "College in the United States." Seoul, South Korea, June 14, 2011.
7. Invited presentation at University of Mississippi. Presented "Effect of Binder Type, Aggregate, and Mixture Composition on the Fracture Energy of Hot Mix Asphalt." Oxford, MS, March 24, 2011.

8. Invited presentation at the Low-Carbon, Green Asphalt Pavement Technology Conference. Presented "Warm Mix Asphalt in the United States." Nanjing, China, October 21, 2010.
9. Invited presentation at Chongqing Jiaotong University. Presented "Innovative Methods of Researching Cracking of Asphalt Concrete." Chongqing, China, May 20, 2010.
10. Invited presentation at University of Wisconsin - Madison. Presented "Capturing Mixed-Mode Cracking in Asphalt Concrete Using the Arcan Specimen." Madison, WI, January 19, 2010.
11. Invited presentation at Southeast University. Presented "Cracking in Asphalt Concrete Pavements." Nanjing, China, March 19, 2008.

## Presentations

1. Braham, A. Students Look at Preservation Performance: Website RoadResource.org, Transportation Research Board Webinar, March 5, 2020.
2. Braham, A. Leveraging the Benefits of Pavement Preservation in Arkansas, National Cheng Kung University, Tainan, Taiwan, February 27, 2020.
3. Braham, A. Sustainability and Pavement Preservation, 2020 AEMA-ARRA-ISSA Annual Meeting, San Antonio, TX, February 17-21, 2020.
4. Braham, A. RoadResource.org in the University Classroom, Western Regional Association for Pavement Preservation, Sacramento, CA, January 29, 2020.
5. Casillas, S., Braham, A. Defining and Quantifying Pavement Preservation in Arkansas, AHD18/AKT20 Pavement Preservation Committee Meeting, 99<sup>th</sup> Transportation Research Board Annual Meeting, Washington, DC, January 14, 2020.
6. Braham, A. Pavement Preservation: The 30,000 ft View, University of Missouri, Columbia, MO, October 25, 2019.
7. Braham, A. Leveraging Pavement Preservation, Australian Road and Research Board, ARRB, Melbourne, Australia, August 22, 2019.
8. Braham, A., Perpetual Pavements Plus (PP+) – Improving Traditional Asphalt Concrete Perpetual Pavements, 18<sup>th</sup> AAPA International Flexible Pavement Conference, Australian Asphalt Pavement Association, Sydney, Australia, August 21, 2019.
9. Braham, A., Kadrmas, A., Ishee, M. Developing an Online, On-Demand Certificate Program for Asphalt Emulsions, 18<sup>th</sup> AAPA International Flexible Pavement Conference, Australian Asphalt Pavement Association, Sydney, Australia, August 20, 2019.
10. Braham, A. AAPA and Preventative Maintenance. Arkansas Asphalt Pavement Association, Little Rock, AR, June 20, 2019.
11. Braham, A. An Introduction to Micro Surfacing and Slurry Seals. TRB Webinar: Building Better Micro Surfacing and Slurry Seals, April 24, 2019.
12. Braham, A. In the Field: Pavement Preservation, Maintenance, and Rehabilitation for Flexible Pavements. Connecting the DOTs, Webinar, March 27, 2019 (<https://www.youtube.com/watch?v=Vt6reY3bwr8>).
13. Braham, A. Teaching Panel Discussion for Biological Engineering (BENG) 5801: Graduate Seminar, University of Arkansas, Fayetteville, AR, March 11, 2019.
14. Braham, A. Roadway Maintenance: A United States Perspective. Yutave Engineering, Veracruz, Mexico, February 22, 2019.
15. Smith, S., Braham, A. Quantifying Workability, Compactability, and Cohesion Gain of Asphalt Emulsion Cold In-Place Recycling, 2019 AEMA-ARRA-ISSA Annual Meeting, Cancun, Mexico, February 20, 2019.
16. Braham, A. Exploring pavement network treatments using RoadResource.org, Graduate Student Seminar, University of Arkansas, Fayetteville, AR, January 31, 2019.



17. Braham, A., Kadrmas, A., Ishee, M. Asphalt Emulsion Manufacturing Association (AEMA) Online Certificate, 98<sup>th</sup> Transportation Research Board, January 16, 2019.
18. Braham, A. Asphalt Emulsion Manufacturing Association (AEMA) Online Certificate, AASHTO Committee on Maintenance, Pavement Technical Working Group, AASHTO TSP•2 - Emulsion Task Force, Indianapolis, IN, November 28, 2018.
19. Braham, A., Hossain, Z., Aschenbrener, T. Evaluating Performance of Asphalt Pavements in Arkansas, TRB Webinar: Moisture Damage in Asphalt Pavements: Forensic Analyses and Research Needs, October 31, 2018.
20. Braham, A. Cold In-place Recycling (CIR) and Full Depth Reclamation (FDR), Guest lecture for Civil Engineering (CVEG) 4413: Pavement Evaluation and Rehabilitation, University of Arkansas, Fayetteville, AR, October 24, 2018.
21. Braham, A. Pervious Pavements, A Civil Engineering Perspective. Guest lecture for Biological Engineering (BENG) 4933: Sustainable Watershed Engineering, University of Arkansas, Fayetteville, AR, September 25, 2018.
22. Braham, A. RoadHogs Pavement Research at the University of Arkansas, Huanan University, Changsha, China, August 8, 2018.
23. Braham, A. Asphalt Emulsion Manufacturing Association (AEMA) Online Certificate, AASHTO Committee on Maintenance, Pavement Technical Working Group, Charlotte, NC, July 24, 2018.
24. Braham, A. Pavement Maintenance and Rehabilitation, Garver, Fayetteville, AR, May 31, 2018.
25. Braham, A., Hernandez, S., Kent, J. Locating Transload Facilities to Ease Highway Congestion and Safeguard the Environment, 2018 TRC Transportation Engineering Conference, Hot Springs, AR, May 17, 2018.
26. Braham, A. Roadway Maintenance: A United States Perspective, Universitat Politècnica de Catalunya, Barcelona, Spain, May 7, 2018.
27. Braham, A. Asphalt Emulsion Manufacturing Association Online Certificate, International Bitumen Emulsion Foundation (IBEF) Symposium, Pavement Preservation and Recycling Summit (PPRS), Nice, France, March 26-28, 2018.
28. Braham, A. AEMA online certificate development update, 2018 AEMA-ARRA-ISSA Annual Meeting, Indian Wells, CA, February 20-23, 2018.
29. Braham, A., Williams, B. Maintenance and Rehabilitation, Back 2 Basics: NAPA webinar series, December 6, 2017.
30. Smith, S., Braham, A., Hernandez, S. Transportation to Opportunity: Increasing access to transportation for women and children in rural Arkansas, poster presentation at Women's Giving Circle, Fayetteville, AR, October 20, 2017.
31. Braham, A. Pervious Pavements, A Civil Engineering Perspective. Guest lecture for Biological Engineering (BENG) 4933: Sustainable Watershed Engineering, University of Arkansas, Fayetteville, AR, October 5, 2017.
32. Braham, A. Pavements and asphalt binders. Guest lecture for Civil Engineering (CVEG) 3413: Transportation Engineering, University of Arkansas, Fayetteville, AR, October 2, 2017.
33. Braham, A., Hernandez, S., Kent, J. Locating Transload Facilities to Ease Highway Congestion and Safeguard the Environment, TRC1608 final meeting, Fayetteville, AR, September 1, 2017.
34. Hall, K., Braham, A. Performance-Based Mixture Design (PDB) for Arkansas, TRC1802 kick-off meeting, Little Rock, AR, August 30, 2017.
35. Hossain, Z., Braham, A., Baumgardner, G., Mahmud, I., Alam, S., Morales, A. Performance of Asphalts Modified with Polyphosphoric Acid (PPA), TRC1501 final meeting, Little Rock, AR, June 28, 2017.

36. Smith, S., Asborn, M., Vines, J., Braham, A., Hernandez, S., Kent, J. Locating Transload Facilities to Ease Highway Congestion and Safeguard the Environment, poster presentation at Arkansas State Highway and Transportation Department, 104<sup>th</sup> Transportation Research Committee Meeting and Engineering Conference, Hot Springs, AR, May 16-17, 2017.
37. Braham, A. Exploring Alternative Methods of Environmental Analysis, poster presentation at Pavement Life-Cycle Assessment Symposium, Champaign, IL, April 11-13, 2017.
38. Braham, A. Overview of Research: Andrew Braham, Arkansas Asphalt Pavement Association Young Leaders Meeting, Fayetteville, AR, April 5, 2017.
39. Braham, A. Quantification and Characterization of Fracture Resistance in Asphalt Concrete Based on R-Curve Method, Universitat Politècnica de Catalunya, Barcelona, Spain, March 30, 2017.
40. Braham, A. Roadway Maintenance: A United States Perspective, Universitat Politècnica de Catalunya, Barcelona, Spain, March 28, 2017.
41. Braham, A. Pavement Maintenance and Rehabilitation: Assessing a Life Cycle Cost Analysis, Texas A&M University, Doha, Qatar, March 26, 2017.
42. Braham, A. AEMA online certificate development update, AEMA/ARRA/ISSA Annual Meeting, Tucson, AZ, February 17, 2017.
43. Braham, A. Warm Mix Asphalt versus Hot Mix Asphalt: A Reflection on Compaction Behavior, Arizona State University, Tempe, AZ, February 14, 2017.
44. Smith, S., Braham, A. FDR as a Bound and Unbound Layer: Academic Research, Incorporating Structural Rehabilitation Techniques into PavementME, Workshop 897, Transportation Research Board, Washington, DC, January 12, 2017.
45. Smith, S., Hernandez, S., Braham, A., Kent, J. Developing a Statewide Transload Facility Inventory: Challenges and Lessons Learned, Transportation Research Board, Washington, DC, January 9, 2017.
46. Braham, A. Pervious Pavements, A Civil Engineering Perspective. Guest lecture for Biological Engineering (BENG) 4933: Sustainable Watershed Engineering, University of Arkansas, Fayetteville, AR, November 22, 2016.
47. Braham, A. Cost benefit analysis. Guest lecture for Architecture (ARCH) 303V-H: Sustainable Design and Construction through Multidisciplinary Learning, University of Arkansas, Fayetteville, AR, November 15, 2016.
48. Braham, A. Life cycle analysis. Guest lecture for Architecture (ARCH) 303V-H: Sustainable Design and Construction through Multidisciplinary Learning, University of Arkansas, Fayetteville, AR, November 8, 2016.
49. Underwood, S., Braham, A. State of the Art and Practice in Fatigue Cracking Evaluation of Asphalt Concrete Pavements Part 3, Association of Asphalt Paving Technologists webinar series, November 3, 2016.
50. Braham, A. Characterizing Emulsion Effects on Aged Asphalt Concrete Surfaces using Bending Beam Rheometer Mixture Beams, International Symposium on Asphalt Emulsion Technology, Crystal City, VA, November 2, 2016.
51. Braham, A., Underwood, S. State of the Art and Practice in Fatigue Cracking Evaluation of Asphalt Concrete Pavements Part 2, Association of Asphalt Paving Technologists webinar series, October 27, 2016.
52. Underwood, S., Braham, A. State of the Art and Practice in Fatigue Cracking Evaluation of Asphalt Concrete Pavements Part 1, Association of Asphalt Paving Technologists webinar series, October 20, 2016.

53. Smith, S., Hernandez, S., Braham, A. Transportation to Opportunity: Increasing access to transportation for women and children in rural Arkansas, Women's Giving Circle, Fayetteville, AR, October 7, 2016.
54. Braham, A. Green and cutting edge materials. Guest lecture for Architecture (ARCH) 303V-H: Sustainable Design and Construction through Multidisciplinary Learning, University of Arkansas, Fayetteville, AR, September 15, 2016.
55. Smith, S., Hernandez, S., Braham, A. Developing a Statewide Transload Facility Inventory: Challenges and Lessons Learned, Southern Plains Transportation Center Summer Symposium, Oklahoma City, OK, August 10, 2016.
56. Yang, S., Braham, A. Quantification and Characterization of Fracture Resistance in Asphalt Concrete Based on R-Curve Method, Southeast University, Nanjing, Jiangsu, China, June 13, 2016.
57. Braham, A. Tribology: Looking Beyond Laboratory Compaction Metrics for the Superpave Gyratory Compactor. An International Workshop on the Genome of Stone-based Civil Infrastructure Materials, Beijing, China, June 9, 2016.
58. Braham, A. Past Hebei Research and Present Compaction Research. Shijiazhuang, Hebei, China, June 8, 2016.
59. Braham, A. A Synthesis of Laboratory Compaction Metrics for the Superpave Gyratory Compactor, Transportation Research Congress, Beijing, China, June 7, 2016.
60. Morales, A., Castillo, E., Braham, A. Exploring Laboratory Performance of Polyphosphoric Acid, Hong Kong Polytechnic University, Hong Kong, China, June 1, 2016.
61. Braham, A., Hernandez, S., Kent, J. Locating Transload Facilities to Ease Highway Congestion & Safeguard the Environment, TRC1608 kickoff meeting, Little Rock, AR, May 12, 2016.
62. Aschenbrener, T., Braham, A., Hossain, Z. Evaluating Performance of Asphalt Pavement Based on Data Collected During IRP: Follow-up Analysis, TRC1404, Little Rock, AR, May 11, 2016.
63. Braham, A., Hernandez, S., Kent, J. Cottam, B., Richey, A., Sutherland, C. Locating Transload Facilities to Ease Highway Congestion and Safeguard the Environment, Arkansas State Highway and Transportation Department, Poster presentation at 102<sup>nd</sup> Transportation Research Committee Meeting and Engineering Conference, Little Rock, AR, April 5-6, 2016
64. Yang, S., Braham, A., Underwood, S., Hanz, A., Reinke, G. Correlating Field Performance to Laboratory Dynamic Modulus from Indirect Tension and Torsion Bar. 91st Association of Asphalt Paving Technologists Annual Meeting, Indianapolis, IN, March 14, 2016.
65. Braham, A. AAPT Newer Member Committee (NMC) update. 91st Association of Asphalt Paving Technologists Annual Meeting, Indianapolis, IN, March 14, 2016.
66. Braham, A. Asphalt Emulsion Residue Recovery: State of the State. AEMA/ARRA/ISSA Annual Meeting, Bonita Springs, FL, February 24, 2016.
67. Braham, A. Comparing Life Cycle Cost Analysis of Full Depth Reclamation versus Traditional Pavement Maintenance and Rehabilitation Strategies, Transportation Research Board, Washington, DC, January 12, 2016.
68. Braham, A. Pervious Pavements, A Civil Engineering Perspective. Guest lecture for Biological Engineering (BENG) 4933: Sustainable Watershed Engineering, University of Arkansas, Fayetteville, AR, September 29, 2015.
69. Yang, S., Braham, A., Chowdhury, N., Hossain, Z. Linking Field and Lab Performance of Interstate Pavements, International Symposium on Systematic Approaches to Environmental Sustainability in Transportation, Fairbanks, AK, August 3, 2015.

70. Yang, S., Braham, A., Hanz, A., Underwood, S. Correlating Field Performance to Laboratory Dynamic Modulus from Torsion Bar and Indirect Tension, TRC1404 update, Arkansas State University, Jonesboro, AR, June 25, 2015.
71. Yang, S., Braham, A., Chowdhury, N., Hossain, Z. TRC1404 – Evaluating Performance of Asphalt Pavement Based on Data Collected During IRP, 100th Transportation Research Committee Meeting and Engineering Conference, North Little Rock, AR, May 21, 2015.
72. Henrichs, C., Braham, A. TRC1405 - Examination of Full-Depth Reclamation Techniques for Shale Areas Across Arkansas, 100th Transportation Research Committee Meeting and Engineering Conference, North Little Rock, AR, May 21, 2015.
73. Yang, S., Braham, A., Chowdhury, N., Hossain, Z. TRC1404 – Evaluating Performance of Asphalt Pavement Based on Data Collected During IRP, Poster Presentation, 100th Transportation Research Committee Meeting and Engineering Conference, North Little Rock, AR, May 20-21, 2015.
74. Henrichs, C., Braham, A. TRC1405 - Examination of Full-Depth Reclamation Techniques for Shale Areas Across Arkansas, Poster Presentation, 100th Transportation Research Committee Meeting and Engineering Conference, North Little Rock, AR, May 20-21, 2015.
75. Henrichs, C., Braham, A. Laboratory Comparison of Full Depth Reclamation Stabilization Techniques Using Arkansas Field Materials, Graduate Student Seminar, University of Arkansas, Fayetteville, AR, April 30, 2015.
76. Smith, S., Braham, A. Comparing Layer Types for the Use of MEPDG for FDR Design, Graduate Student Seminar, University of Arkansas, Fayetteville, AR, March 12, 2015.
77. Henrichs, C., Braham, A. Laboratory Comparison of Full Depth Reclamation Stabilization Techniques Using Arkansas Field Materials, Poster Presentation, Association of Asphalt Paving Technologists, Portland, OR, March 7-11, 2015.
78. Smith, S., Braham, A. Comparing Layer Types for the Use of MEPDG for FDR Design, Poster Presentation, Association of Asphalt Paving Technologists, Portland, OR, March 7-11, 2015.
79. Yang, S., Braham, A. Dynamic Modulus, Fracture Toughness, and R-Curve of Asphalt Concrete, Poster Presentation, Association of Asphalt Paving Technologists, Portland, OR, March 7-11, 2015.
80. Braham, A. Sustainability in Civil Engineering, ASCE Day of Training, Fayetteville, AR, March 4, 2015.
81. Porter, R., Braham, A. Exploring Effects of Notch Geometries on Asphalt Fracture Testing, Poster Presentation, STEM Posters at the Capitol, Little Rock, AR, February 11, 2015.
82. Braham, A. Jackson, A. Reducing Sample Size for Cold In-place Recycling Design and Testing, Fayetteville, AR, August 29, 2014.
83. Braham, A. Research of Evotherm Warm Mix Technology and RAP Usage for Hebei Province, Final Report Presentation, Hebei, Shijiazhuang, China, March 27, 2014.
84. Smith, S., Henrichs, C., Braham, A. Comparison of Lab Compaction Methods on Full Depth Reclamation, Poster Presentation, Association of Asphalt Paving Technologists, Atlanta, GA, March 16-19, 2014.
85. Smith, S., Braham, A. The Effect of Lab Compaction Method on the Strength of FDR Mixtures, AEMA-ARRA-ISSA Annual Meeting, Aventura, FL, February 27, 2014.
86. Smith, S., Braham, A. Full Depth Reclamation: A Pavement Maintenance & Rehabilitation Technique, County Judges Association of Arkansas 2014 Annual Winter Meeting, Little Rock, AR, February 14, 2014.

87. Braham, A. Sustainability and Pavements, INGETEC, Ingenieros Consultores, Bogota, Colombia, February 13, 2014.
88. Braham, A. Pavement Research at the University of Arkansas and Exploring Full Depth Reclamation (FDR), Universidad Distrital Francisco José de Caldas, Bogota, Colombia, February 13, 2014.
89. Braham, A. Sustainability and Pavements, Pontificia Universidad Javeriana, Bogota, Colombia, February 12, 2014.
90. Braham, A. The Importance of Pavement Maintenance and Rehabilitation of Pavements, Universidad de los Andes, Bogota, Colombia, February 12, 2014.
91. Braham, A. Sustainability and Pavements, Universidad de los Andes, Bogota, Colombia, February 10, 2014.
92. Braham, A. Pavement Research at the University of Arkansas and Exploring Full Depth Reclamation (FDR), Universidad de los Andes, Bogota, Colombia, February 7, 2014.
93. Braham, A., Steger, R., Lynn, T., and Pyle, R. Characterizing Compactability of High RAP and Warm Mix Asphalt Mixtures in the Superpave Gyrotory Compactor, Poster Presentation, Transportation Research Board, Washington, DC, January 15, 2014.
94. Underwood, S., Braham, A. Research Needs Statements: The Foundation of Successful Proposals, Transportation Research Board, Doctoral Workshop, Washington, DC, January 12, 2014.
95. Ryan, J., Braham, A. Foamed Asphalt Viscosity, Presentation at Texas A&M University for Texas Transportation Institute, College Station, TX, August 5, 2013.
96. Yang, S., Braham, A. The Investigation of R-Curves of Asphalt Concrete, Presentation at ASCE Airfield and Highway Pavement Conference, Los Angeles, CA, June 11, 2013.
97. Yang, S., Braham, A. Research of Evotherm Warm Mix Technology and RAP Usage for Hebei Province, Presentation to Hebei Province research team, Shijiazhuang, Hebei, China, May 30, 2013.
98. Ryan, J., Braham, A. Workability of Foamed Warm Mix Asphalt, Association of Asphalt Paving Technologists, Poster Presentation, Denver, CO, April 7 – 10, 2013.
99. Yang, S., Braham, A. The Investigation of R-Curve and Crack Propagation in Asphalt Concrete, Association of Asphalt Paving Technologists, Poster Presentation, Denver, CO, April 7 – 10, 2013.
100. Jackson, A., Braham, A. Sample Size Reduction of Cold In-Place Recycled Roadway Testing Specimens, Association of Asphalt Paving Technologists, Poster Presentation, Denver, CO, April 7 – 10, 2013.
101. SEC Travel Grant Presentation. Presented “Pavement Research at the University of Arkansas,” Gainesville, FL, March 19, 2013.
102. Jackson, A., Braham, A. Sample Size Reduction of Cold In-Place Recycled Roadway Testing Specimens, Abstract to Contract competition, Poster Presentation, University of Arkansas, Fayetteville, AR, February 8, 2013.
103. Charmot, S., Braham, A., Zhang, K. Effect of Emulsion Content and Cement Loading on Cold Recycling Mixture Fracture Energy Measured Using the Semi Circular Bending Fracture Test, Poster Presentation, Transportation Research Board, Washington, DC, January 16, 2013.
104. Braham, A., Howard, I., Barham, J. Effects of Emulsion Type on Bending-Beam Rheometer Field-Aged Asphalt Concrete Beams, Poster Presentation, Transportation Research Board, Washington, DC, January 16, 2013.
105. Underwood, S., Braham, A. Research Needs Statements: The Foundation of Successful Proposals, Transportation Research Board, Doctoral Workshop, Washington, DC, January 14, 2013.



106. Arkansas Portland Cement Concrete Pavement Conference. Presented “Concrete Pavement Research Overview,” Little Rock, AR, August 7, 2012.
107. RILEM: 7th International Conference on Cracking in Pavements. Presented “Comparing the Slope of Load/Displacement Fracture Curves of Asphalt Concrete,” Delft, Netherlands, June 20, 2012.
108. Royal Institute of Technology (KTH). Presented “An Overview of Pavement Research at the University of Arkansas,” Stockholm, Sweden, June 15, 2012.
109. Harbin Institute of Technology. Presented “Asphalt Concrete Master Resistance Curves,” Harbin, Heilongjiang, China, June 8, 2012.
110. Harbin Institute of Technology. Presented “Writing a Successful Journal Publication,” Harbin, Heilongjiang, China, June 8, 2012.
111. Harbin Institute of Technology. Presented “Research at the University of Arkansas,” Harbin, Heilongjiang, China, June 8, 2012.
112. 2012 China-USA New Technology to Build and to Maintain Highway Technology Conference. Presented “Introduction to High Performance Asphalt Concrete Mixtures,” Fengxin, Jiangxi, China, May 31, 2012.
113. Southeast University. Presented “Writing a Successful Journal Publication,” Nanjing, Jiangsu, China, May 24, 2012.
114. Southeast University. Presented “Master Resistance Curves for Asphalt Concrete,” Nanjing, Jiangsu, China, May 24, 2012.
115. 94th Transportation Research Committee Meeting, Arkansas State Highway Transportation Department. Presented “New Pavement Materials Testing Equipment at the University of Arkansas at Fayetteville,” Little Rock, AR, May 9, 2012.
116. Invited guest for 10th KXUA radio (University of Arkansas student radio) Sustainability Show, hosted by Gavin Smith, Fayetteville, AR, April 14, 2012.
117. Association of Asphalt Paving Technologists Board Meeting. Presented “Newer Member Committee (NMC) Update,” Austin, TX, March 31, 2012.
118. TEAM Conference. Presented “An Overview of Hot In-place and Cold In-place Recycling,” Branson, MO, March 16, 2012.
119. InVia Pavement Technologies and Sinopec. Presented “Pavement Research at the University of Arkansas,” Tulsa, OK, March 14, 2012.
120. Missouri S&T and Arkansas Collaboration meeting. Presented "Transportation Capabilities and Projects." Rolla, MO, March 2, 2012.
121. Quality Asphalt Paving Conference. Presented "Pavinars – Webinars for the Pavement Community." Little Rock, AR, January 5, 2012.
122. Arkansas Portland Cement Concrete Pavement Conference. Presented “Life Cycle Cost Analysis Versus Life Cycle Analysis.” Little Rock, AR, August 30, 2011.
123. Seoul National University of Science & Technology. Presented “Warm Mix Asphalt in the United States.” Seoul, South Korea, June 14, 2011.
124. Korean Society of Road Engineers. Presented “Asphalt Concrete and Fracture.” Seoul, South Korea, June 13, 2011.
125. Engineering Mechanics Institute 2011, Dallas Little Honorary Symposium. Presented “Innovative Methods of Analyzing Fracture Data from Asphalt Concrete.” Boston, MA, June 3, 2011.
126. Arkansas Asphalt Pavement Association Annual Meeting. Presented “Pavinars: Webinars for the Pavement Community.” Hot Springs, AR, March 30, 2011.
127. Paragon Technical Services, Inc. Presented "Pavement Maintenance Products Research." Jackson, MS, March 21, 2011.

128. Preservation and Rehabilitation 2011 – AEMA/ARRA/ISSA Annual Meeting. Presented "Current & Future Laboratory Research on Pavement Maintenance Products." Tucson, AZ, January 25, 2011.
129. 11th International Conference on Asphalt Pavements (ISAP). Presented "An Introduction of the Arcan Testing Configuration for Mixed-Mode Cracking in Asphalt Concrete." Nagoya, Japan, August 4, 2010.
130. 11th International Conference on Asphalt Pavements (ISAP). Presented "Thermal Cracking Simulations of Aged Asphalt Pavements using Viscoelastic Functionally Graded Finite Elements." Nagoya, Japan, August 3, 2010.
131. University of Arkansas. Presented "A Brief Look at the Past, plus Five to Ten Years in the Future." Fayetteville, AR, April 20, 2010.
132. Airport Pavement Design and Management Summit 2010. Presented "New Research within the Area of Warm Mix Asphalt." Singapore, January 27, 2010.
133. Airport Pavement Design and Management Summit 2010. Panel Participant "The Future of Pavement Technology: What Should We Expect in the Next 5-10 Years?" Singapore, January 26, 2010.
134. Virginia Tech University. Presented "Dr. Fujian Ni's Research Group at Southeast University." Blacksburg, VA, January 16, 2010.
135. Transportation Research Board AFK20 committee meeting. Presented "Asphalt Cement in China: Today and Tomorrow." Washington, D.C., January 11, 2010.
136. New Technology Promotion of Road Pavement Engineering Materials Summit. Presented "Warm Mix Asphalt in the United States." Changzhou, Jiangsu, China, December 25, 2009.
137. Sejong University. Presented "Fracture Characteristics of Asphalt Concrete." Seoul, South Korea, November 7, 2009.
138. 11th Korean Society of Road Engineers Conference. Presented "Fracture Characteristics of Asphalt Concrete." Busan, South Korea, November 6, 2009.
139. Keynote Presentation at the 11th Korean Society of Road Engineers Conference. Presented "Twenty Years of Highway Construction in China: 1988-2008." Busan, South Korea, November 5, 2009.
140. 13th International Flexible Pavements Conference. Presented "Prediction of Rutting in China." Surfers Paradise, Australia, October 14, 2009.
141. GeoHunan International Conference on Challenges and Recent Advances in Pavement Technologies and Transportation Geotechnics. Presented "China's Warm Mix Asphalt Experience." Changsha, Hunan, China, August 3, 2009.
142. 7th International RILEM Symposium on Advanced Testing and Characterization of Bituminous Materials. Presented "Mode II Cracking in Asphalt Concrete." Rhodes, Greece, May 27, 2009.
143. 7th International RILEM Symposium on Advanced Testing and Characterization of Bituminous Materials. Presented "Mixed-Mode Cracking in Asphalt Concrete." Rhodes, Greece, May 28, 2009.
144. Transportation Research Board. Poster presentation "Comparison of Low-Temperature Field Performance and Laboratory Testing Using Ten Test Sections in Midwest." No. 09-3207, Washington, D.C., January 13, 2009.
145. Transportation Research Board. Poster presentation "Anisotropic Behavior of Hot Mix Asphalt at Low Temperatures." No. 08-0885, Washington, D.C., January 15, 2008.
146. 8th International Symposium on Cold Region Development. Presented "Effect of Hot Mix Asphalt Pavement Depth on Fracture Energy." Tampere, Finland, September 25, 2007.

147. National Center for Asphalt Technology, Professor Training Course in Asphalt Technology. Presented "Development of a Flattened Indirect Tension Test for Asphalt Concrete." Auburn, AL, June 28, 2007.
148. Society for Experimental Mechanics Annual Conference and Exposition. Presented "Development of a Flattened Indirect Tension Test for Asphalt Concrete." Springfield, MA, June 5, 2007.
149. Illinois Asphalt Pavement Association 70th Annual Meeting. Presented the idea of a Hot Mix Asphalt Design competition between universities in Illinois and Indiana. I generated this idea based on my experience in Wisconsin's competition. Springfield, IL, March 13, 2007.
150. Transportation Research Board. Poster presentation "Effect of Binder Type, Aggregate, and Mixture Composition on the Fracture Energy of Hot-Mix Asphalt in Cold Climates." No. 07-1280, Washington, D.C., January 23, 2007.
151. Transportation Research Board AFK20 and AFK50 committee meetings. Presented the idea of a Doctoral Student Workshop in asphalt materials, a forum where graduate students can meet to discuss their research. The first workshop took place at TRB in January 2008, and was cosponsored by AFK20 and AFK50. Washington, D.C., January 22 (AFK20) and January 24 (AFK50), 2007.

**Pavinars** (YouTube Channel: [https://www.youtube.com/channel/UCbo-D\\_tDFDznn9NUPw0o8g](https://www.youtube.com/channel/UCbo-D_tDFDznn9NUPw0o8g))

1. June 14, 2020: Reducing Sample Size for Cold In-place Recycling Design and Testing
2. April 29, 2020: Influence of Aging and Moisture on Laboratory Performance of Asphalt Concrete
3. February 19, 2020: The Development of Master Fracture Curves for Asphalt Concrete
4. February 5, 2020: Development of a Field Measuring Device for Return to Traffic for Full-Depth Reclamation Pavements
5. May 6, 2014: Portland Cement Concrete Overlays
6. April 1, 2014: Wide Base Tires, a.k.a. Super Singles
7. March 4, 2014: High Levels of Recycled Asphalt Pavement (RAP) in Asphalt Concrete
8. February 4, 2014: An Overview of Biobinders
9. December 3, 2013: New Developments in Airfield Pavements
10. November 5, 2013: Deicers and Concrete Pavements
11. October 1, 2013: SAMI (Stress Absorbing Membrane Interface) and Other Stress Relief Asphalt Layers
12. September 3, 2013: Use of Recycled Asphalt Shingles from Processing Through Plant Production
13. May 7, 2013: Foamed Asphalt and Laboratory Testing (specifically  $M_R$ )
14. April 2, 2013: Sustainability and Pavements
15. March 5, 2013: Pavement Management Systems
16. February 5, 2013: Different Methods of Asphalt Pavement Crack Repair
17. December 4, 2012: Stone Matrix Asphalt
18. November 6, 2012: An Introduction to Roller Compacted Concrete
19. October 2, 2012: Stringless Paving: Advantages & Disadvantages
20. September 4, 2012: Life Cycle Cost Analysis
21. May 1, 2012: Hot In-place Recycling 101
22. April 10, 2012: Whitetopping - Is it for you?
23. March 6, 2012: Introduction to HMA Mix Design
24. February 7, 2012: Introduction to PCC Mix Design
25. December 6, 2011: What Is Mechanistic-Empirical?
26. November 1, 2011: Overview of Warm Mix Asphalt

27. October 4, 2011: Basic Portland Cement Concrete Maintenance Principles
28. September 2, 2011: Basic Asphalt Concrete Maintenance Principles
29. August 2, 2011: Differences between Portland Cement Concrete and Asphalt Concrete

### Awards and Recognitions

- 2019 President's Award – Asphalt Emulsion Manufacturing Association
- 2018 Outstanding Teacher Award – Civil Engineering, University of Arkansas
- 2018 Outstanding Mentor Award – University of Arkansas
- 2018 "Private Sector Applicability" Paper Award - TRB Intermodal Freight Transport Committee (AT045) for "Development of a Cost Estimation Framework for Potential Transload Facilities."
- 2016 Outstanding Teacher Award – Civil Engineering, University of Arkansas
- 2016 Outstanding Faculty Award (nomination) – University of Arkansas
- 2016 Award of Recognition – Association of Asphalt Paving Technologist
- 2014 Outstanding Mentor Award – University of Arkansas
- 2012 Outstanding Mentor Award – University of Arkansas
- 2012 New Faculty Teaching Commendation – University of Arkansas

### Synergistic Activities

- Developed and provided on-demand online certificate program with Asphalt Emulsion Manufacturing Association and University of Arkansas Global Campus
  - "Introduction to Asphalt Emulsion" (2017-current)
  - "Applications of Asphalt Emulsion" (2017-current)
  - "Manufacturing of Asphalt Emulsions" (2018-current)
  - "Achieving Quality of Asphalt Emulsion" (2020-current)
  - Go to <https://training.uark.edu/> and search "asphalt emulsion")
- Developed with three colleagues "LeadershipWWEB" leadership podcast series (<https://soundcloud.com/user-561194034>)
- Developed and provided "Pavinar" webinar series (2011-2014) (YouTube Channel: [https://www.youtube.com/channel/UCbo-D\\_tfDFDzzn9NUPw0o8g](https://www.youtube.com/channel/UCbo-D_tfDFDzzn9NUPw0o8g))
- Editorial Board Member for *Road Materials and Pavement Design*
- Journal reviewer for *Association of Asphalt Paving Technologists, Construction and Building Materials, International Journal of Pavement Engineering, Journal of Materials in Civil Engineering, Journal of Testing and Evaluation, Road Materials and Pavement Design, Transportation Research Record*
- Director-At-Large for the Association of Asphalt Paving Technologists (2017-2018), member of Membership Committee (2015-2017), chair of Newer Members Committee (2012-2016), member of Publications Committee (2013-2014)
- Member of Transportation Research Board (TRB) committees: Committee on Pavement Preservation, AHD18 (2012-current); Characteristics of Asphalt Paving Mixtures to Meet Structural Requirements, AFK50 (2012-2018); Characteristics of Bituminous Materials, AFK20 (2011-2017)
  - AFK50: Workshop organizer for: Incorporating Structural Rehabilitation Techniques into Pavement-ME, Workshop 897 at Transportation Research Board, January 12, 2017
- Associate Member of TRB Special Committee on Inclusion and Diversity (2018 – current)
- Chair of Pavement Preservation and Recycling Alliance (PPRA) Sustainability Committee (2020-current)

- Developed and led PPRA Sustainability Committee Workshop, April 13-14, 2020.
- Chair of Young Members Committee for the Asphalt Emulsion Manufacturing Association (2017-2020)
- Conference committees: 10<sup>th</sup> International Conference on Road and Airfield Pavement Technology, Hong Kong, China, August 8-10, 2017 (academic committee); International Conference on Transportation Infrastructure and Materials, Qingdao, China, June 9-12, 2017 (technical committee); Transportation Research Congress, Beijing, China, June 6-8, 2016 (scientific committee)
- Member of University of Arkansas committees: University Diversity and Inclusion Champion (2018 – current), University Faculty Athletics Committee (2017 – current; chair 2018 – current); College of Engineering Technology Committee (2013-current); chair of Civil Engineering Department Sustainability Minor task group (2012-current); University Transit, Parking, and Traffic Committee (2011-2014); Civil Engineering Department Transportation Faculty Search Committee (2012, 2013, 2014); Civil Engineering Department Graduate Studies Committee (2011-2014)
- Faculty advisor in Department of Civil Engineering at University of Arkansas for student groups: Chi Epsilon (2015-2017); Transportation Leaders in the 21<sup>st</sup> Century (TL21, 2015-2016)
- Participated in Annual Major Greeks at University of Arkansas (2013, 2014)
- Attended INEG5253, “Leadership Principles,” taught by Dr. John White, Distinguished Professor of Industrial Engineering and Chancellor Emeritus, University of Arkansas, Fall, 2013
- Graduated from ExCEED, *American Society of Civil Engineers ExCEED Teaching Workshop*, Fort Myers, FL, July 21-26, 2013
- Chairman at the Airport Pavement Design and Management Summit 2010, Singapore
- Exhibitor at the 2005-08 College of Engineering Open House exhibits on pavements
- Program Facilitator for 2005-08 University of Illinois Leadership Center I-Programs at University of Illinois Urbana-Champaign
- Organizing Committee of the 2007 and 2008 Transportation Highway and Engineering Conference, University of Illinois
- Assistant Conference Director of the 2006 Transportation Highway and Engineering Conference, University of Illinois
- Staff Writer for 2005-06 Technograph, University of Illinois Engineering Magazine

### Courses Taught

- Developed and taught *Transportation Infrastructure* (two semesters at University of Arkansas; senior)
- Developed and taught *Sustainability in Construction Management* (one semester at University of Arkansas; grad/senior)
- Developed and taught *Perpetual Pavements Plus* (one semester at University of Arkansas; grad/senior)
- Developed and taught *Sustainability in Civil Engineering* (seven semesters at University of Arkansas; senior/grad)
- Enhanced and taught *Transportation Engineering* (eight semesters at University of Arkansas; junior)
- Developed and taught *Sustainability in Civil Engineering* (five semesters at University of Arkansas; online graduate)
- Developed and taught *Advanced Materials Characterization* (two semesters at University of Arkansas; grad/senior)



- Enhanced and taught *Structural Design of Pavement Systems* (three semesters at University of Arkansas; grad/senior);
- Enhanced and taught *Geometric Design of Roads* (one semester at University of Arkansas; senior)
- Enhanced and taught *Transportation Pavement and Materials* (one semester at University of Arkansas; senior/grad)
- Enhanced and taught laboratory section of *Asphalt Materials I* (two semesters at University of Illinois; senior)
- Taught laboratory section of *Construction Materials* (two semesters at University of Wisconsin; junior)

### **Graduate Advisors and Postdoctoral Sponsors**

Postdoctoral Research Fellowship, Dr. Fujian Ni, Southeast University, Nanjing, Jiangsu, China  
Ph.D., Dr. William Buttlar, University of Illinois at Urbana-Champaign, USA  
M.S., Dr. Hussain Bahia, University of Wisconsin – Madison, USA

### **Thesis Advisor, Postgraduate-Scholar Sponsor, and External Committee Member**

Ph.D. (3) – Sadie Casillas (2020, currently at US Army Corps of Engineers); Airam Morales (2019, currently at Technological University of Panama); Shu Yang (2016, currently Assistant Professor at Hunan University, Changsha, China)  
M.S. (11) – Pedro Diaz Romero (2020-current); Logan Kiihnl (2020); Erica Yeung (2017); Elvis Castillo (2016); Airam Morales (2016); Sadie Smith (2015); Chase Henrichs (2015); Alex Jackson (2014); John Ryan (2014); Amanda Garbacz (2014, degree awarded posthumous); Rob Hill (2013)  
Undergraduate Honors Thesis (8) – David Olatunji (2018-current); Bette Poblete (2019); Aleinys Villarreal Rojas (2019); Farida Mahmud (2017); Rebekah Porter (2016); Karangwa Ken Rutabana (2015); Sadie Smith (2013); Alex Jackson (2012)  
FEP Honors Program (3 pairs) – Eli LaSalle/Emma Presley (2016); Zachary Lemmon/Reihle Saldana (2015); Abby Terlouw/Becca McCann (2014)  
External Committee Member (2) – Nemat, Rasool (University of New Hampshire, Ph.D. Civil Engineering, 2019); Chowdhury, Nazmul (Arkansas State University, M.S. Engineering, 2015)

### **Funding Sources**

Arkansas Department of Transportation, Asphalt Emulsion Manufacturing Association, China Postdoctoral Science Foundation, Federal Highway Administration (FHWA), Hebei Province (China), Mack-Blackwell Rural Transportation Center, National Natural Science Foundation of China, National Science Foundation, New Jersey Department of Transportation, private industry (5 companies), SEC Visiting Faculty Travel Grant Program, Southeast University (Nanjing, China), University of Arkansas, Women's Giving Circle