

VITA

MICHAEL S. MAMLOUK, Ph.D., P.E., F.ASCE

Professor and ex-Program Chair

Civil, Environmental and Sustainable Engineering Program

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PRINCIPAL FIELD OF INTEREST

Transportation Engineering, Highway Materials, Pavement Design and Management, Structural Evaluation of Pavement Systems, Pavement Maintenance and Rehabilitation, and Computer Applications.

DEGREES

Ph.D. in Civil Engineering, Aug. 1979, Purdue University, Lafayette, Indiana.

Master of Science in Civil Engineering, May 1976, Purdue University, Lafayette, Indiana.

Bachelor of Science in Civil Engineering, June 1972, Cairo University, Egypt, (graduated with honor degree).

SOCIETIES

1. American Society of Civil Engineers, Fellow
2. Transportation Research Board
3. Association of Asphalt Paving Technologists, Member
4. Chi Epsilon National Civil Engineering Honor Society, Member
5. ASCE Geo-Institute Pavements Committee, Member

PROFESSIONAL REGISTRATION

Registered Professional Engineer in Arizona No. 17915.

PROFESSIONAL EXPERIENCE

Professor of Civil and Environmental Engineering

Arizona State University

Tempe, AZ 85287, 1990 - Present

Teaching courses of engineering materials, pavement design, pavement management, bituminous materials and portland cement concrete; conducting research funded by the Federal Highway Administration (FHWA), National Cooperative Highway Research Program (NCHRP), Arizona Department of Transportation and local agencies; supervising graduate students at the Master and Ph.D. levels; supervising the Highway Materials Laboratory; published numerous journal papers and technical articles; and has been a consultant and expert witness to industry in many technical areas.

Associate Professor of Civil Engineering

Arizona State University

Tempe, AZ 85287, 1984 - 1990

Taught courses of pavement design, pavement management, bituminous materials, portland cement concrete, statics and engineering materials; established and supervised the Highway Materials Laboratory; conducted research in the structural evaluation of pavement systems, development of computer workstation for pavement design, dynamic analysis of pavement structures, nondestructive testing of pavement and characterization of pavement materials; supervised graduate students at the Master and Ph.D. levels; published many journal papers and technical articles; and was a consultant to industry.

Assistant Professor of Civil Engineering

State University of New York at Buffalo

Buffalo, NY 14260, 1979 - 1984

Taught courses of pavement design, traffic engineering, highway materials, geometric design of highways, applied mechanics and soil properties; involved in both theoretical and experimental research projects dealing with characterization and recycling of paving materials, numerical analysis, structural evaluation of pavement, and traffic simulation; supervised graduate students at both Master and Ph.D. levels; published many journal papers and technical articles in various areas of transportation and geotechnical engineering; and was a consultant and expert witness to local industry in several projects.

Graduate Instructor in Research and Graduate Teaching Assistant

Purdue University, School of Civil Engineering

W. Lafayette, Indiana 47907, 1974 - 1979

MAIN FUNDED RESEARCH AT ARIZONA STATE UNIVERSITY

1. Co-Principal Investigator, "Evaluation of Asphalt Mixture Properties with Different Types of Fibers," FORTA Corporation, Phase II, 2020-2021, \$103,000.
2. Principal Investigator, "Evaluation of Asphalt Mixture Properties with Different Types of Fibers," FORTA Corporation, 2019-2020, \$108,000.
3. Principal Investigator, "Analysis of Aramid Synthetic Fibers in Asphalt Mixes on Local Roads," Ohio Dept. of Transportation, 2018-2020, \$230,324.
4. Principal Investigator, "IGA between Maricopa County and ASU for Training," Maricopa County, 2016-2022, \$228,300.
5. Principal Investigator, "Effect of Pavement Condition on Accident Rate," National Transportation Center, Maryland, 2016-2017, \$48,214.
6. Principal Investigator, "Effect of Traffic Roundabout on Safety in Arizona," National Transportation Center, Maryland, 2015-2016, \$16,000, .
7. Principal Investigator, "Validating Endurance Limit for HMA Pavements: Laboratory Experiment and Algorithm Development," NCHRP Project 09-44A, National Cooperative Highway Research Program, Washington, D.C., 2009-2013, \$839,456.
8. Co- Principal Investigator, "Development and Implementation of the Mechanistic Empirical (M-E) Pavement Design Guide for Arizona," Arizona Dept. of Transportation, 2007-2009, \$350,000.
9. Principal Investigator, "Pavement Design Research towards the Implementation of the Mechanistic-Empirical Pavement Design Guide". Maricopa County, 2007-2009, \$150,000.
10. Principal Investigator, "IGA between Maricopa County and ASU for Training," Maricopa County, 2001-2006, \$500,000.
11. Research Engineer, "Superpave Support and Performance Models Management," NCHRP 9-19, National Cooperative Highway Research Program, Washington, D.C., 1999-2002.
12. Principal Investigator, "Pavement Maintenance Treatment - Pavement Maintenance Effectiveness," Federal Highway Administration, Washington, D.C., \$187,000, 1994-1998.
13. Principal Investigator, "Laboratory Testing of Soils and Bituminous Materials," National Research Council, Strategic Highway Research Program (SHRP), Washington, DC, \$839,000. (Subcontract from Western Technologies Inc. Total contract was \$2,273,000), 1989-1993.
14. Course Coordinator, "Highway Materials Engineering," Two 6-Week Courses, National Highway Institute, Federal Highway Administration, Washington, DC., \$300,000, 1991-93.
15. Principal Investigator, "Low Volume Roads Rehabilitation Strategies", Arizona Dept. of Transportation, \$6,000, 1991.
16. Principal Investigator, "Laboratory Evaluation of Typical ADOT Asphalt Concrete", Arizona Dept. of Transportation, \$21,000, 1990.

17. Principal Investigator, "Rational Characterization of Pavement Materials Using Deflection Analysis," Arizona Dept. of Transportation, \$322,000, 1986-1989.
18. Equipment Grant, "Computers and Resistivity Machine for the Highway Materials Lab," Arizona Dept. of Transportation, \$4,000, 1989.
19. Principal Investigator, "Vehicle-Pavement Interaction," Arizona Dept. of Transportation, \$10,000, 1989.
20. Principal Investigator, "Pavement Evaluation Study," City of Phoenix, \$20,000, 1988.
21. Principal Investigator, "Nuclear Density Testing of Granular Materials," Arizona Dept. of Transportation, \$9,000, 1988.
22. Co-Principal Investigator, "Organic Hazardous Waste Project," Reynolds Electrical and Engineering Company, \$44,000, 1985-1986.
23. Principal Investigator, "Premature Pavement Failure," Arizona Dept. of Transportation, \$10,000, 1985-1986.
24. Principal Investigator, "Development of Microcomputer Program for Moduli Prediction of Pavement Layers," Arizona Dept. of Transportation, \$8,000, 1986.
25. Principal Investigator, "Characterization of Modified Asphalt Mixtures," Sahuaro Petroleum and Asphalt Company, \$4,000, 1986.
26. Equipment Grant, "Instrumentation for the Highway Materials Lab," Arizona Dept. of Transportation, \$19,000, 1986.
27. Equipment Grant, "Spectrophotometer for the Highway Materials Lab," Arizona Dept. of Transportation, \$19,000, 1986.
28. Principal Investigator, "Dynamic Analysis of Nondestructive Testing of Pavements," U.S. Corps of Engineers, Waterways Experiment Station, \$18,000, 1985.

BOOKS AND BOOK CHAPTERS

1. Mamlouk, M.S. and Zaniewski, J.P., "Materials for Civil and Construction Engineers," 4th Edition, Pearson Prentice-Hall, N.J., 2017.
2. Mamlouk, M.S. and Zaniewski, J.P., "Materials for Civil and Construction Engineers," 3rd Edition, Pearson Prentice-Hall, N.J., 2011.
3. Mamlouk, M.S. and Zaniewski, J.P., "Materials for Civil and Construction Engineers," 2nd Edition, Pearson Prentice-Hall, N.J., 2006.
4. Mamlouk, M.S., "Design of Flexible Pavements," Ch. 8, Handbook of Highway Engineering, CRC Press LLC, U.K., 2006.
5. Mamlouk, M.S., Editor, "Pavement Subgrade, Unbound Materials, and Nondestructive Testing," Geotechnical Special Publication No. 98, Geo Institute, ASCE, Reston, VA, 2000.
6. Mamlouk, M.S. and Zaniewski, J.P., "Materials for Civil and Construction Engineers," 1st Edition, Prentice-Hall, N.J., 1999.

7. Davies, T. G. and Mamlouk, M. S., "Elasto-dynamic Analysis and Nondestructive Testing of Pavements," Ch. 28, Vol. 1, Civil Engineering Practice," Technomic Publishing Co., 1987.

PUBLICATIONS

1. In Refereed Journals

1. Mamlouk, M. S. and Wood, L. E., "Evaluation of the Use of Indirect Tensile Test Results for Characterization of Asphalt Emulsion Treated Bases", Record No. 733, Transp. Research Board, 1979, pp 99-105.
2. Mamlouk, M. S., et al., "Laboratory Evaluation of Asphalt Emulsion Mixtures by Use of the Marshall and Indirect Tensile Tests", Record No. 754, Transp. Research Board, 1980, pp 17-22.
3. Mamlouk, M. S. and Wood, L. E., "Properties of Asphalt Stabilized Aggregate from Evaluation of Laboratory Prepared Specimens," Vol. 4, No. 3, ASTM, Geotechnical Testing Journal, Sept. 1981, pp 96-103.
4. Mamlouk, M. S. and Wood, L. E., "Effect of Aggregate Top Size on the Asphalt Emulsion Mixture Properties", Record No. 821, Transp. Research Board, 1981, pp 44-49.
5. Mamlouk, M. S. and Wood, L. E., "Characterization of Asphalt Emulsion Treated Bases", Vol. 107, No. TE2, ASCE, Transp. Eng. Journal, March 1981, pp 183-196.
6. Mamlouk, M. S. and Manolis, G. D., "Experimental Analysis and Numerical Simulation of Marshall Method of Asphalt Concrete Mix Design", Vol. 11, No. 2, ASTM, Journal of Testing and Evaluation, March 1983, pp 99-105.
7. Mamlouk M. S. and Wood, L. E., "Utilization and Properties of Emulsified Asphalt Mixtures Pertaining to Low-Volume Roads", Record No. 898, Transp. Research Board, 1983, pp 277-283.
8. Mamlouk, M. S. and Ayoub, N. F., "Evaluation of Long Term Behavior of Cold Recycled Asphalt Mixture", Record No. 911, Transp. Research Board, 1983, pp 64-66.
9. Mamlouk, M. S., et al., "Analyses of Nonlinear Behavior of Asphalt Concrete During Marshall Test", Vol. 11, No. 5, ASTM, Journal of Testing and Evaluation, Sept. 1983, pp 327-332.
10. Mamlouk, M. S. and Wood, L. E., "Effect of Specimen Size on Marshall Test Results of Cold-Mixed Asphalt Stabilized Bases", Record No. 911, Transp. Research Board, 1983, pp 67-69.
11. Mamlouk, M. S., "Seasonal Load Limit Determined by the Criterion of Uniform Failure Rate," Record No. 954, Transp. Research Board, 1984, pp 58-63.
12. Mamlouk, M. S. and Sebaaly B. E., "Overlay Thickness Design for Flexible Pavement", Record No. 993, Transp. Research Board, 1984, pp 63-67.

13. Mamlouk, M. S. and Davies, T. G., "Elasto-Dynamic Analysis of Pavement Deflections", Vol. 110, No. 6, ASCE Journal of Transp. Eng., Nov. 1984, pp 536-550.
14. Mamlouk, M. S., "Rheology of Cold-Recycled Pavement Materials Using Creep Test", Vol. 12, No. 6, ASTM, Journal of Testing and Evaluation, Nov. 1984, pp 341-347.
15. Mamlouk, M. S., "Microanalysis of Signal Synchronization", Traffic Eng. and Control Journal, Oct. 1984, pp 492-495.
16. Mamlouk, M. S., "Use of Dynamic Analysis in Predicting Field Multilayer Pavement Moduli", Record No. 1043, Transp. Research Board, 1985, pp 113-121.
17. Mamlouk, M. S., "Evaluation of In-Situ Pavement Moduli from Deflection Measurements", Vol. 13, No. 1. ASTM, Journal of Testing and Evaluation, Jan. 1985, pp 60-68.
18. Davies, T. G., and Mamlouk, M. S., "Theoretical Response of Multilayer Pavement Systems to Dynamic Nondestructive Testing", Record No. 1022, Transp. Research Board, 1985, pp 1-7.
19. Sebaaly, B. E. and Mamlouk, M. S., "Typical Curves for Evaluation of Pavement Stiffness from Dynaflect Measurements," Record No. 1070, Transp. Research Board, 1986, pp 42-52.
20. Sebaaly, B. E., Mamlouk, M. S., and Davies, T. G., "Dynamic Analysis of Falling Weight Deflectometer Data," Record No. 1070, Transp. Research Board, 1986, pp 63-68.
21. Sebaaly, B. E., Davies, T. G., and Mamlouk, M. S., "Dynamics of the Falling Weight Deflectometer," Vol. 111, No. 6, ASCE, Journal of Transp. Eng., Nov. 1985, pp 618-632.
22. Mamlouk, M. S. and Sarofim, R. T., "The Modulus of Asphalt Mixtures - An Unresolved Dilemma," Record No. 1171, Transp. Research Board, 1988, pp 193-198.
23. Gemayel, C. A. and Mamlouk, M. S., "Characterization of Hot-Mixed Open-Graded Asphalt Mixtures, Record No. 1171, Transp. Research Board, 1988, pp 184-192.
24. Sebaaly, P. E. and Mamlouk, M. S. "Development of Dynamic Fatigue Failure Criterion," Vol. 114, No. 4, ASCE, Journal of Transp. Eng., July 1988, pp 450-464.
25. Mamlouk, M. S., Cano, J. O. and Charania, E., "Implementation of the 1986 AASHTO Guide at the City and County Levels," Record No. 1215, Transp. Research Board, 1989, pp 15-24.
26. Mamlouk, M.S. et. al., "Overlay Design Method for Flexible Pavements in Arizona," Record No. 1286, Transp. Research Board, 1990, pp 112-122.
27. Zaniewski, J.P., Perera, R. and Mamlouk, M.S., "Feedback of Pavement Management Performance Data for Pavement Design," Record No. 1272, Transp. Research Board, 1990, pp 74-79.

28. Mamlouk, M.S., "A Rational Look at Truck Axle Weight," Record No. 1307, Transp. Research Board, 1991, pp 8-19.
29. Houston, W. N., Mamlouk, M.S. and Perera, R.W.S., "Laboratory Versus Non-destructive Testing for Pavement Design," Vol. 118, No. 2, ASCE, Journal of Transp. Eng., March 1992, pp 207-222.
30. Mamlouk, M.S. et. al, "Arizona Experience with Asphalt-Aggregate Mixture Analysis System Procedure," Record No. 1353, Transp. Research Board, 1992, pp 100-107.
31. Maestas, J.M. and Mamlouk, M.S., "Comparison of Pavement Deflection Analysis Methods Using Overlay Design," Record No. 1377, Transp. Research Board, 1992, pp 17-25.
32. Khanal, P.P. and Mamlouk, M.S., "Tensile Versus Compressive Moduli of Asphalt Concrete," Record No. 1492, Transp. Research Board, 1995, pp 144-150.
33. Mamlouk, M.S., "Effect of Vehicle-Pavement Interaction on Weigh-in-Motion Equipment Design," Vol. 3, No. 1, Journal of Heavy Vehicle Systems, Geneva, Switzerland, 1997, pp 306-322.
34. Khanal, P.P. and Mamlouk, M.S., "Program BIMODPAV for Analysis of Flexible pavements," Vol. 123, No. 1, ASCE, Journal of Transp. Eng., Jan./Feb. 1997, pp 43-50.
35. Mobasher, B., Mamlouk, M.S., and Lin, H.M., "Evaluation of Crack Propagation Properties of Asphalt Mixtures," Vol. 123, No. 5, ASCE, Journal of Transp. Eng., Sept./Oct. 1997, pp 405-413.
36. Mamlouk, M.S., "General Outlook of Pavement and Vehicle Dynamics," Tech. Note, Vol. 123, No. 6, ASCE, Journal of Transp. Eng., Nov./Dec. 1997, pp 515-517.
37. Mikhail, M.Y. and Mamlouk, M.S., "Effect of Vehicle-Pavement Interaction on Pavement Response," Record No. 1570, Transp. Research Board, 1997, pp 78-88.
38. Mamlouk, M.S. and Zaniewski, J.P., "Pavement Preventive Maintenance: Description, Effectiveness, and Treatments," STP 1348, ASTM, Nov. 1998, pp 121-135.
39. Mikhail, M.Y. and Mamlouk, M.S., "Effect of Traffic Loads on Pavement Serviceability," STP 1348, ASTM, Nov. 1998, pp 7-20.
40. Mamlouk, M.S. and Mikhail, M.Y., "A Concept for Mechanistic-Based Performance Model for Flexible Pavements," Record No. 1629, Transp. Research Board, 1998, pp149-158.
41. Zaniewski, J.P. and Mamlouk, M.S., "Pavement Preventive Maintenance: The Key to Quality Highways," Record No. 1680, Journal of the Transp. Research Board, Washington, DC, 1999, pp 26-29.
42. Mamlouk, M.S., Zaniewski, J.P., and He, W., "Analysis and Design Optimization of Flexible Pavement," Vol. 126, No. 2, ASCE, Journal of Transp. Eng., March/April 2000, pp 161-167.

43. Saleh, M.F., Mamlouk, M.S., and Owusu-Antwi, E.B., "A Mechanistic Roughness Model Based on Vehicle-Pavement Interaction," Record No. 1699, Journal of the Transp. Research Board, Washington, DC, 2000, pp 114-120.
44. Mamlouk, M.S., Zaniewski, J.P., "Optimizing Pavement Preservation: An Urgent Demand for Every Highway Agency," Vol. 2(2), International Journal of Pavement Engineering, 2001, pp 135-148.
45. Mamlouk, M.S., Witczak, M.W., Kaloush, K.E., and Ho Y.S., "Effect of Anisotropy on Compressive and Tensile Properties of Asphalt Mixtures," Vol. 30, No. 5, ASTM, Journal of Testing and Evaluation, Sept. 2002, pp 432-438.
46. Saleh, M.F. and Mamlouk, M.S., "Calibration of a Pavement Roughness Model Based on Finite Element Simulation," Vol. 3(4), International Journal of Pavement Engineering, Dec. 2002, pp 227-238.
47. Mamlouk, M.S. and Mobasher, B., "Cracking Resistance of Asphalt Rubber Mix Versus Hot-Mix Asphalt," International Journal of Road Materials and Pavement Design, Vol. 5, No. 4, 2004, pp 435-451.
48. Mamlouk, M.S., Witczak, M.W., Kaloush, K., and Hasan, N., "Determination of Thermal Properties of Asphalt Mixtures," Vol. 33, No. 2, ASTM, Journal of Testing and Evaluation, March 2005, pp.118-126.
49. Abojaradeh, M.A., Witczak, M.W., Mamlouk, M.S., and Kaloush, K., "Validation of Initial and Failure Stiffness Definitions in Flexure Fatigue Test for Hot Mix Asphalt." Vol. 35, No. 1, ASTM, Journal of Testing and Evaluation, Jan. 2007, pp. 95-102.
50. Biligiri, K.P., Kaloush, K.E., Mamlouk, M.S., and Witczak, M.W., "Rational Modeling of Tertiary Flow for Asphalt Mixtures," Record No. 2001, Journal of the Transp. Research Board, Washington, DC, 2007, pp.63-72.
51. Mamlouk, M.S., El-Basyouny, M. and Sharma, S., "Effect of Vehicle Class Distribution on Predicted Performance of Flexible Pavement Using the AASHTO MEPDG METHOD," International Journal of Pavements, Volume 8, Numbers 1-2-3, 2009.
52. Mamlouk, M.S. and Zapata, C.E., "Necessary Assessment of Use of State Pavement Management System Data in Mechanistic-Empirical Pavement Design Guide Calibration Process," Record No. 2153, Vol. 1, Journal of the Transportation Research Board, Washington, DC, 2010, pp. 58-66.
53. Souliman, M.I., Mamlouk, M.S., Elbasyouny, M., and Zapata, C.E., "Calibration of the AASHTO MEPDG for Designing Flexible Pavements in Arizona Conditions," International Journal of Pavements, Volume 9, Numbers 1-2-3, 2010.
54. Belshe, M., Mamlouk, M.S., Kaloush, K.E., and Rodezno, M., "Temperature Gradient and Curling Stresses in Concrete Pavement with and without Open Graded Friction Course," Vol. 137, No. 10, ASCE, Journal of Transp. Eng., October 2011, pp 723-729.
55. Souliman, M.I., Mamlouk, M.S., Zapata, C.E., and Cary, C., "Data Collection to Support Implementation of the Mechanistic-Empirical Pavement Design Guide for County Roads," Record No. 2225, Journal of the Transportation Research Board, Washington, DC, 2011, pp 67-77.

56. Mamlouk, M., Souliman, M., Zeiada, W., and Kaloush, K., "Refining Conditions of Fatigue Testing of Hot Mix Asphalt," *ASTM Journal of Advances in Civil Engineering Materials*, Vol. 1, Issue 1, Paper ID: ACEM20120018, DOI: 10.1520/ACEM20120018, http://www.astm.org/DIGITAL_LIBRARY/JOURNALS/ACEM/PAGES/ACEM20120018, Nov. 21, 2012.
57. Souliman, M.I., Zeiada, W., Mamlouk, M.S., and Kaloush, K., "Laboratory Validation of Healing-Based Fatigue Endurance Limit for Hot-Mix Asphalt," Record No. 2373, *Journal of the Transportation Research Board*, Washington, DC, 2013, pp 1-10.
58. Souliman, M.I., Zeiada, W., Mamlouk, M.S., and Kaloush, K., "Fatigue Endurance Limit for HMA Based on Healing," *Journal of the Association of Asphalt Paving Technologists*, Vol. 82, Lino Lakes, MN, 2013, pp 503-531.
59. Zeiada, W., Souliman, M., Kaloush, K., and Mamlouk, M., "Endurance Limit for HMA Based on Healing Concept Using Uniaxial Tension-Compression Fatigue Test," *ASCE, Journal of Materials in Civil Engineering*, 10.1061/(ASCE)MT.1943-5533.0000917, Aug. 10, 2013.
60. Zeiada, W.A., K.E. Kaloush, S.B. Underwood, and M.S. Mamlouk. "Improved Method to Consider Air Void and Asphalt Content Changes on Long-Term Performance of Asphalt Concrete Pavements," *Int'l Journal of Pavement Engineering*, Vol. 15, Issue 8, 2013, pp. 718-730.
61. Witczak, M., Mamlouk, M., Souliman, M., and Zeiada, W., "Laboratory Validation of an Endurance Limit for Asphalt Pavements," NCHRP Report 762, National Cooperative Highway Research Program, Washington, DC, 2013, 26p.
62. Mamlouk, M. and Dosa, M., "Verification of Effectiveness of Chip Seal as a Pavement Preventive Maintenance Treatment using LTPP data, *Int'l Journal of Pavement Engineering*, DOI: 10.1080/10298436.2014.893318, <http://dx.doi.org/10.1080/10298436.2014.893318>, 2014.
63. Zeiada, W., Souliman, M., Kaloush, K., Mamlouk, M., and Underwood, S., "Comparison of Fatigue Damage, Healing, and Endurance Limit Using Beam and Uniaxial Fatigue Tests," *Journal of the Transportation Research Board*, No. 2447, <http://trid.trb.org/view.aspx?id=1289616>, Washington, DC, 2014, pp 32–41.
64. Souliman, M.I., Mamlouk, M.S., and Kaloush, K., "Preliminary Prediction of Endurance Limit for Asphalt Rubber Mixtures Due To Healing," *Canadian Journal of Civil Engineering*, 2014, 41(11): 964-969, 10.1139/cjce-2013-0505.
65. Mamlouk, M. and Souliman, M., "Reducing Inconsistency of HMA Flexure Fatigue Testing." *Journal of Materials in Civil Engineering*, [http://ascelibrary.org/doi/pdf/10.1061/\(ASCE\)MT.1943-5533.0001422](http://ascelibrary.org/doi/pdf/10.1061/(ASCE)MT.1943-5533.0001422), 2015, pp 1-8.
66. Zeiada W., Kaloush K, Underwood S, and Mamlouk M., "Development of Test Protocol to Measure Axial Fatigue Damage and Healing," *Journal of the Transportation Research Board*, No. 2576, Washington, DC, 2016, pp10-18.
67. Souliman, M.I., Mamlouk, M.S., and Eifert, A., "Cost-Effectiveness of Rubber and Polymer Modified Asphalt Mixtures as Related to Fatigue Performance," *ASTM Journal of Advanced Civil Engineering Materials*, Vol. 6, No., 2017, www.astm.org.
68. Mamlouk, M. and Souliman, M.I., "A Simple Approach for Designing Sustainable Pavement with Self-Healing Fatigue Cracking," *ASCE's Journal of Transportation*

Engineering, Part B: Pavements, Vol. 143, Issue 2, June 2017,
<http://ascelibrary.org/doi/abs/10.1061/JPEODX.0000008>.

69. Medina, J.R., Underwood, B.S. and Mamlouk, M., "Estimation of Asphalt Concrete Modulus Using the Ultrasonic Pulse Velocity Test," ASCE, Journal of Transportation Engineering, Part B: Pavements, Vol. 144, Issue 2: 04018008, June 2018,
<https://ascelibrary.org/doi/10.1061/JPEODX.0000036>.
70. Mamlouk, M., Vinayakamurthy, M., Underwood, S. and Kaloush, K., "Effects of the International Roughness Index and Rut Depth on Crash Rates," Journal of the Transportation Research Board, [http:// https://doi.org/10.1177/0361198118781137](http://https://doi.org/10.1177/0361198118781137), June 2018.
71. Mamlouk, M. and Souliman, B., "Effect of Traffic Roundabouts on Accident Rate and Severity in Arizona," ISSN: 1943-9962, 1943-9970; DOI: 10.1080/19439962.2018.1452812, Journal of Transportation Safety & Security, 2018.
72. Noorvand, H., Mamlouk, M.; and Kaloush, K., "Evaluation of Optimum Fiber Length in Fiber-Reinforced Asphalt Concrete," Journal of Materials in Civil Engineering, ASCE, ISSN 0899-1561, 34(3): 04021494, 2022.
73. Noorvand, H., Brockman, S, Mamlouk, M.; and Kaloush, K., "Effect of Aramid Fibers on Balanced Mix Design of Asphalt Concrete," Journal of Advances in Civil Engineering, CivilEng, 3, 21–34, <https://doi.org/10.3390/civileng3010002>, 2022.

II. Refereed Conference Proceedings and Presentations

1. Mamlouk, M. S., May, R. L., and Michael, H. L., "Right-Turn-on-Red in Indiana", Proc., 62nd Annual Road School, Purdue University, March 1976.
2. Mamlouk, M. S., "Right Turn on Red: Utilization and Impact", Presented at the Institute of Transp. Engineers Meeting, Indianapolis, IN, 1977.
3. Mamlouk, M. S., et al., "Analysis of Laboratory Test Results of Asphalt Stabilized Bases", Vol. 26, Proc., Canadian Technical Asphalt Association, Canada, Nov. 1981.
4. Mamlouk, M. S. and Manolis, G. D., "Rational Analysis of Bituminous Mixture Behavior during Marshall Test", Vol. 27, Proc., Canadian Technical Asphalt Association, Canada, Nov. 1982.
5. Mamlouk, M. S., "Asphalt Reclamation", Presented at the American Public Works Association Meeting, Buffalo, N.Y., Oct. 1982.
6. Mamlouk, M. S. and Wood, L. E., "Utilization and Properties of Emulsified Asphalt Mixtures Pertaining to Low-Volume Roads," Presented at the Third Int'l Conf. on Low-Volume Roads," Tempe, AZ, July 1983.
7. Mamlouk, M. S., et al., "Laboratory Evaluation and Nonlinear Structural Analysis of Asphalt Concrete Behavior During Marshall Test", Presented at the 62nd Annual Transp. Research Board Meeting, Washington, DC, 1983.
8. Mamlouk, M. S., "Engineering Properties of Patching Materials", Presented at the Winter Road Maintenance Workshop, Buffalo, N.Y., Feb. 1983.

9. Sarofim, R. T. and Mamlouk, M. S., "Stochastic Response of Multi-Dimensional Structural Systems", Proc., Fourth Int'l Conf. on Applications of Statistics and Probability in Soil and Structural Eng., Florence, Italy, June 1983.
10. Mamlouk, M. S., "Evaluation and Recycling of Asphalt Pavement Materials", Presented at the New York State Asphalt Pavement Association Annual Meeting, Buffalo, N.Y., March 1983.
11. Mamlouk, M. S. and Ayoub, N. F., "Viscoelastic Behavior of Cold Recycled Pavement Materials", Vol. 28, Proc., Canadian Technical Asphalt Association, Canada, Nov. 1983.
12. Mamlouk, M. S., "Mechanistic Approach to Highway Rehabilitation," Proc., 12th Annual PTRC Meeting, Brighton, England, July 1984.
13. Mamlouk, M. S., "Use of Antistripping Additives in Pavement Patching Mixes", Vol. 29, Proc., Canadian Technical Asphalt Association, Canada, Nov. 1984.
14. Sarofim, R. T. and Mamlouk, M. S., "Assessment of First Order Reliability Analysis for Ribbed Bridge Decks", Proc., 4th Int'l Conf. on Structural Safety and Reliability (ICOSSAR '85), Kobe, Japan, May 1985.
15. Mamlouk, M. S., "Pavement Design--Art or Science," Presented at the ASCE Arizona Section Meeting, Phoenix, AZ, Oct. 1986.
16. Mamlouk, M. S., "Dynamic Analysis of Multilayered Pavement Structures - Theory, Significance and Verification," Proc., Sixth Int'l Conf. on the Structural Analysis of Asphalt Pavements, Ann Arbor, MI, July 1987, pp 466-474.
17. Mamlouk, M. S. and Betz, M. J., "Nondestructive Testing of Pavement and its Applications in Developing Countries," Proc., Third IRF Middle East Regional Meeting, Saudi Arabia, Feb. 1988.
18. Mamlouk, M.S., et. al., "Pavement Design Method for Phoenix," Proc., 38th Annual Arizona Conf. on Roads and Streets, Tucson, AZ, April 1989.
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65. Presented more than 40 papers at the Annual Transportation Research Board Meetings, Washington, DC, 1979 - present.

III. Technical Reports

Wrote and published numerous technical reports in various areas of transportation and geotechnical engineering for federal, state, city and private agencies.

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