

## INTERESTS AND EXPERTISE

- Teaching civil engineering and construction management classes with an expert area of construction material, statics, dynamics and deformable bodies, structural analysis, soil-sand-aggregate-concrete and asphalt properties, construction equipment and mechanics
- Improving the mechanical properties of construction material by modification

## EDUCATION

**Ph.D., 2013-2016**, Civil & Environmental Engineering; Geotechnical and Pavement Engineering, Michigan State University (MSU), East Lansing, USA

**M.Sc., 2009-2011**, Civil & Environmental Engineering; Transportation and Pavement Engineering, Michigan State University (MSU), East Lansing, USA

**B.Sc., 2002-2007**, Civil Engineering (Honors), with Construction Management Major  
Middle East Technical University (METU), Ankara, Turkey

## ACADEMIC APPOINTMENTS

Assistant Professor, University of West Florida, Building Construction, Administration and Law 08/2018 to Present

Adjunct Faculty, Eastern Michigan University, School of Visual and Built Environments, Construction Management Department 08/2016 to 08/2018

Research Associate, Michigan State University, College of Engineering, Department of Civil & Environmental Engineering 08/2016 to 08/2018

## PROFESSIONAL EXPERIENCE/ TEACHING ACTIVITIES

Project Engineer, Intertek-PSI 08/2017 to 08/2018

- Supervising geotechnical investigation teams for MDOT I-75 modernization project
- Planning and organization of the different teams within job-site
- Managing and organizing the coordination between surveying, drilling, traffic, and engineering teams
- Providing technical assistance to project subcontractors
- Assisting surveying team to locate field investigation points
- Performing data analysis on the collected samples and preparing technical reports
- Organizing and managing meetings within the company and third parties
- Presenting the findings of the project to client

Adjunct Faculty, Eastern Michigan University 08/2016-08/2018

- CNST 202 Construction Materials (including laboratory sessions)  
*Students were prepared to obtain ACI Concrete Testing Certification as a part of class*
- CNST 303 Mechanical, Electrical and Equipment Systems
- CNST 412 Fundamentals of Structural Engineering
- CNST 436 Heavy Construction Means and Methods

Graduate Research Assistant, Dept. of Civil & Environmental Engineering, Michigan State University, East Lansing, MI, USA 2009-2016

- Selected Courses instructed under the supervision of a lead Instructor*
- CEE 312 Fundamentals of Soil Mechanics (Labs with soil testing)
  - CEE 337 Construction Materials for Civil Engineers (Labs with construction materials testing)
  - CMP 222 Statics and Strength of Materials

*Research Performed*

PROJECT MANAGEMENT (Organizing, Planning, Scheduling and Resource Allocation)

- Prepared Quality System Manual (QSM) and applied/acquired to Michigan State University (MSU) Advanced Asphalt Characterization Laboratories (AACL) according to AASHTO R18 to obtain AMRL Accreditation. Maintained AMRL accreditation for MSU-AACL by performing the on-site assessments and proficiency testing
- Developed internal guidelines for crumb rubber, de-vulcanized and polymer modified asphalt binders and mixtures for Ingham County Road Commission
- Designed and supervised construction of city roads (Waverly Road-dry process, Haslett Road-wet process, Cornell Road- Hybrid process, Bennet and Kinawa Road- High RAP with de-vulcanized rubber technology, and Lake Lansing Road- pre-swollen project) in Greater Lansing area of Michigan State.

MATERIAL CHARACTERIZATION

- Modified hot liquid asphalt binders with recycled and virgin rubbers (de-vulcanized) and elastomers
- Studied the material characteristics of asphalt mixtures (Dense, SMA, OGFC) and binder types on highway noise
- Investigated the effect of mixing and conditioning during the de-vulcanized/CR rubber and SBS modification process of the hot liquid asphalt binders
- Performed in several lab-based performance tests ( $E^*$ ,FN,FT,MR, IDT,DCT,SCB,PP,FPBB and creep compliance) for characterizing various HMA and WMA mixtures including reclaimed asphalt materials, de-vulcanized rubber, crumb rubber and polymers
- Performed and directed various state-of-the-art binder tests (DSR, BBR, RV, RTFO, PAV, Flash Point)

SUSTAINABLE CONSTRUCTION

- Developed guidelines for selecting pavement recycling methods based on surface condition
- Investigated the impact of reclaimed asphalt materials on flexible pavement performance
- Studies the cost-effectiveness and sustainability of recycled materials (asphalt mixtures and PCC in road construction)

ANALYSIS AND DESIGN

- Performed numerical and computational techniques for slope stability
- Performed pavement analysis and design for flexible and rigid pavements using empirical and mechanistic-empirical procedures
- Performance analysis of the laboratory prepared and field compacted mixture by using ME-PDG and KenPave

EXPERIMENTAL STUDIES

- Setup/Designed/Constructed laboratory testing fixtures for soil and asphalt pavement materials testing, including impedance tube, disc-shaped direct tension test fixture for Material Testing System
- Performed and taught all basic soil mechanics tests including sieve analysis and hydrometer, PL and LL, sand cone, proctor (moisture-density), specific gravity, sand equivalent, CBR, consolidation, strength and compaction tests
- Studied soil improvement techniques, soil reinforcing methods and soil dynamics analysis

Project Engineer, DOT-Federal Highway Administration, Washington D.C, USA

2011-2013

- Managed, organized and supervised the laboratory and laboratory technicians
- Performed Superpave Hot Mix Asphalt (HMA) Tests on Federal Highway Administration Mobile Asphalt Mixture Testing Laboratory (FHWA-MAMTL) according to AASHTO and ASTM standard specifications
- Maintained the Superpave database, test equipment calibration, project notation and collected data for aggregate imaging system (AIMS)

Project Engineer, Shell Qatar, Doha, Qatar

2008-2009

- Involved in project bidding preparation
- Planned & scheduled the work progress
- Prepared progressive payment schedules

## SELECTED PUBLICATIONS & PROFESSIONAL PRESENTATIONS

1. Kocak, S, Kutay, ME (2016). Effect of Addition of Dry Crumb Rubber on the Performance of Terminal Blend Crumb Rubber Modified Asphalt Mixtures. Transportation Research Record: Journal of the Transportation Research Board. <http://dx.doi.org/10.3141/2633-11>
2. Kocak, S, Kutay, ME (2015). Use of Crumb Rubber Modifier in Lieu of Grade Bumping for High Percent Reclaimed Asphalt Pavement Mixtures. Road Materials and Pavement Design. <http://dx.doi.org/10.1080/14680629.2016.1142466>
3. Kocak, S, Kutay, ME (2012). Relationship between Material Characteristics of Asphalt Mixtures and Highway Noise. Transportation Research Record: Journal of the Transportation Research Board, Vol. 3, No. 2295, pp. 35-43. <http://dx.doi.org/10.3141/2295-05>
4. Kocak, S, Kutay, ME (2016). Combined Effect of SBS and De-vulcanized Rubber (DVR) Modification on Performance Grade and Fatigue Cracking Resistance of Asphalt Binders, 8<sup>th</sup> RILEM International Conference on Mechanisms of Cracking and Debonding in Pavements, Vol 13, Part 5, pp 269-274, <http://dx.doi.org/10.1007/978-94-024-0867-6>
5. Kocak, S, Kutay, ME (2015). A Hybrid Terminal Blend – Dry Crumb Rubber Modified Asphalt Mixture – CRHY. Proceedings of the Rubberized Asphalt Rubber 2015, Las Vegas, NV, <http://www.consulpav.com/>. Also presented at 6<sup>th</sup> Rubberized Asphalt Rubber Conference (RAR2015), Las Vegas, NV, October 4-7, 2015.
6. Kutay, ME, Kocak, S, Petros, AK (2010). A New Numerical Modeling Approach for Sound Propagation and Generation: Lattice Boltzmann Method. Transportation Research Board 89<sup>th</sup> Annual Meeting Compendium of Papers. Also presented at 89<sup>th</sup> Annual Transportation Research Board Conference, Washington, D.C., January 10-14, 2010.
7. Kocak, S. (2017). "Effect of Addition of Dry Crumb Rubber on the Performance of Terminal Blend Crumb Rubber Modified Asphalt Mixtures", Accepted for presentation. 96<sup>th</sup> Annual Transportation Research Board Conference, Washington, D.C., January 09-13, 2017.
8. Kocak, S (2016). "Combined Effect of SBS and De-vulcanized Rubber (DVR) Modification on Performance Grade and Fatigue Cracking Resistance of Asphalt Binder", 8<sup>th</sup> RILEM Conference, Nantes, France, June 07-09, 2016.
9. Kocak, S. (2015) "Feasibility of using crumb rubber modifier in lieu of grade bumping for high percent reclaimed asphalt pavement (RAP) mixtures in Michigan", 94<sup>th</sup> Annual Transportation Research Board Conference, Washington, D.C., January 11-15, 2015.
10. Kocak, S. (2012) "Relationship between Material Characteristics of Asphalt Mixtures and Highway Noise", 91<sup>st</sup> Annual Transportation Research Board Conference, Washington, D.C., January 11-15, 2012.

## INSTITUTIONAL AND PUBLIC SERVICES

- MSU – AASHTO accreditation of MSU-Advanced Asphalt Characterization Laboratory (AACL).
- MSU – Lab tours at COE Preview Day events (September 17, 2011 and September 25th, 2012)
- MSU's Research Experiences for Students (RES) program
- MSU – 2010 "Engineering Connect" activity. EGR100 lab tour.
- Performed Federal Highway Administration (FHWA) Mobile Asphalt Testing Laboratory (MAMTL) demonstrations during World of Asphalt 2012 Show and Conference in Charlotte, North Carolina.