

Civil Infrastructure Materials and Pavement Engineering

Understanding and Application of Civil Infrastructure

Materials

- Engineering characterization and modeling of materials
 - Cementitious materials (HSC, HPC, FRC, light weight concrete, grout)
 - Asphaltic materials (asphalt cement, HMA, WMA, gilsonite, paving interlayer)
 - Granular and stabilized bases (aggregate, ATBs)
- Materials' recycling, reuse, and renewal (RAP, RCA)
- Sustainable materials and resilient infrastructure adapting to climate change and extreme events

Economic and Effective Solutions to Transportation Infrastructure Needs

- Pavement design, testing, and evaluation
- Pavement preservation, repair and rehabilitation
- Non-destructive testing
- Pavement management
- Environmental sustainability in life cycle of transportation infrastructure

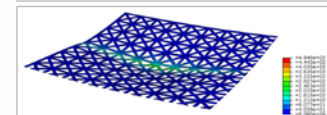
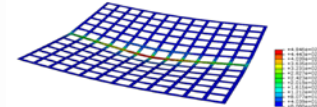
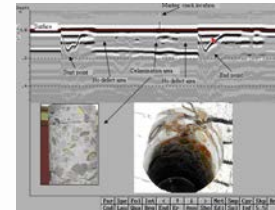
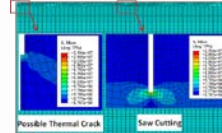
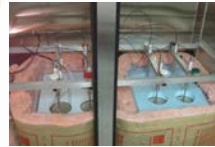
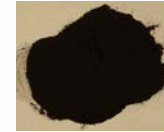
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- USDOT, AKDOT&PF, Caltrans, PacTrans, local government, industry



Liu's research focuses on understanding and application of crucial and more environmentally conscious materials, and economic and effective solutions (design, construction, and preservation strategies) to transportation infrastructure needs

Keywords

- Asphalt cement, hot-mix asphalt, aggregate, cementitious materials, paving interlayers, recycling, pavement design and testing, preservation, repair and rehabilitation, non-destructive testing, transportation infrastructure, pavement management, life cycle, environmental sustainability

Recognitions

- Three times of " Best Paper Award", 2014, 2016, 2017
- 2016 Engineer of the Year, Alaska Society of Professional Engineers Fairbanks Chapter
- 2011 & 2015 ASCE Outstanding Reviewer
- 2013 IACIP Outstanding Service Award
- ASCE ExCEED Fellow