

Chunyu "Joe" Qiao | Senior Associate



EDUCATION

- Central South University
 - Bachelor of Engineering, Geological Engineering, 2011
- University of Science and Technology Beijing
 - Doctor of Philosophy, Mineral Processing Engineering, 2016
- Oregon State University
 - Postdoctoral Scholar, Civil Engineering, 2018

PRACTICE AREAS

- Petrography
- Durability Assessment
- Chemical Analysis
- Service Life Modeling
- Research and Product Evaluation

REGISTRATIONS

- Professional Engineer in TX

PROFESSIONAL AFFILIATIONS

- American Concrete Institute (ACI)
- ASTM International (ASTM)
- International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM)

CONTACT

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EXPERIENCE

Chunyu "Joe" Qiao joined WJE in 2021, bringing his academic and industry expertise analyzing building material quality and durability. He has consulted on numerous materials problems, integrating petrographic, chemical, and electrical techniques. His experience covers a wide range of topics, including concrete quality control, surface defects, durability, early-age shrinkage, supplemental cementitious materials, chemical admixtures, and service life modeling. Dr. Qiao is skilled in visualizing and quantifying his investigation findings using multiple state-of-the-art methods, such as fluorescence microscopy, image analysis, and electrical resistivity.

Prior to joining WJE, Dr. Qiao was a visiting scholar at Purdue University and a postdoctoral researcher at Oregon State University. Since his doctoral studies, he has conducted extensive research on concrete microstructure, transport properties, freeze-thaw damage, deicer damage, electrical resistivity and formation factor, service life modeling, and low-carbon footprint construction materials. Dr. Qiao has published more than thirty peer-reviewed journal articles and presented his research at international conferences, including the American Concrete Institute (ACI), the American Ceramic Society (ACerS), and the International Congress on the Chemistry of Cement (ICCC).

REPRESENTATIVE PROJECTS

Petrography

- Barbours Cut Terminal - Morgan's Point, TX: Concrete condition evaluation
- California High-Speed Rail - Selma, CA: Early-age cracking evaluation
- Clearwater Mill - Lewiston, ID: Concrete condition evaluation
- Epicurean Hotel Expansion - Tampa, FL: Concrete condition evaluation
- Fort Sam Houston Building - San Antonio, TX: Concrete condition evaluation

Durability Assessment

- Arlington Memorial Bridge - Washington, D.C.: Durability testing for alkali-silica reaction (ASR) *

- Deer Valley Water Treatment Plant - Phoenix, AZ: Concrete condition and durability assessment with focuses on cracking and ASR
- Mayaguez Wastewater Treatment Plant - PR: Concrete condition and durability assessment
- Residential Pool Shotcrete - Austin, TX: Shotcrete condition evaluation for multiple residential pools with focus on ASR and delayed ettringite formation (DEF)
- Wind Turbine Concrete Foundations - KS and TX: Durability prognosis with focus on DEF

Chemical Analysis

- MnDOT Concrete Bridges - Dunwoody, MN: Concrete chloride content profiling *
- UDOT I-80 Corridor Phase II Inspection - UT: Concrete chloride content profiling *

Service Life Modeling

- Ball Aerospace FT Mechanical Penthouse Floor - Boulder, CO: Concrete durability assessment with a focus on corrosion *
- Morris Sheppard Dam - Graford, TX: Concrete condition and durability assessment with focuses on cracking, ASR, sulfate attack, and corrosion *

Research and Product Evaluation

- Surface-Treated Concrete Pavements - Indianapolis, IN: Surface treatment evaluation *
- U.S. Bureau of Reclamation - Denver, CO: Concrete evaluation of lab-cast slab *

TECHNICAL COMMITTEES

- ACI Committee 201 - Durability
- ACI Committee 365 - Service Life
- ASTM Committee C09.65 - Petrography
- RILEM EBD - Test Methods to Evaluate Durability of Blended Cement Pastes against Deleterious Ions
- RILEM ASR - Risk Assessment of Concrete mixture designs with ASR aggregates
- *Journal of Infrastructure Preservation and Resilience* - Junior Editorial Board Member

* Indicates work prior to WJE