



SAN ANTONIO ACI CHAPTER

April 2014 Newsletter

April ACI Meeting:

Wednesday April 16th 2014

Presented By
Dr. Derek Cong, Ph.D.
Associate Principal

Wiss, Janney, Elstner Associates, Inc

RSVP by Tuesday April 15th 2014
Melissa Garcia at (210) 349-4069 ext. 199

Or by e-mail at Melissa.garcia@boral.com

Let Melissa know your meal choice.

Meeting Topic

Concrete petrography is an indispensable tool that can be used to determine problems in hardened concrete. In many cases, it may be the only tools available. It can identify problems occurred in raw materials, in batching process, such as w/cm; in finishing and curing operations, such as premature finish; and in service, such as ASR and sulfate attack. This presentation discusses the principles and procedures of concrete petrography, and presents many case studies. Emphasis is given on how concrete petrography can help engineers and contractors in solving real world problems.

April Meeting Location

The Barn Door
8400 N. New Braunfels
San Antonio, TX

Meeting Schedule

Lunch Time: 11:30 am

Menu

Choice of Pork Chops, or Mesquite Grilled Chicken Breast.

Lunch served with tossed salad, mashed potatoes, veggies, roll, and tea.

Cost

\$20 per Chapter Member

\$25 per Non-Member

\$10 per Government Employee

(TXDOT & University Staff)

University ACI chapter members-Free

University students non members \$10

Special Notation:

Thank you to all of our Golf Sponsors and to all of the golfers for their participation. It was a great success. Pictures of the tournament will be available during lunch for your enjoyment.

Coming Soon

Coming in May 2014:

ACI Aggregate Testing Certification: Application coming soon

njgunn@terracon.com



EDUCATION

- Central South University
 - Bachelor of Science, Geology, 1982
 - Master of Science, Petrology, 1985
- University of Illinois at Urbana-Champaign
 - Doctor of Philosophy, Geology/Materials Science, 1994

PRACTICE AREAS

- Aggregate Evaluation
- Petrographic Examination
- Distress Investigation
- Cement Hydration
- Mortar Evaluation
- Construction Materials Investigation
- Litigation Consulting
- Research and Testing

PROFESSIONAL AFFILIATIONS

- ASTM International
- American Concrete Institute (ACI), Central Texas chapter
- International Cement Microscopy Association (ICMA)
- Society of Concrete Petrographers (SCP)

CONTACT

dcong@wje.com
512.257.4800
www.wje.com

EXPERIENCE

Derek Cong has significant practical and theoretical experience with concrete and concrete materials. Since joining WJE in 2001, he has been involved in the petrographic examination of concrete, masonry, aggregate, and other building materials for a variety of structures. He has conducted thousands of investigations involving such material problems as alkali-silica reaction (ASR), low strength, retardation, cement-admixture interaction, efflorescence and other surface defects, fire-damaged concrete, cracking, sulfate attack, and delayed ettringite formation (DEF). He is often consulted on concrete mix designs to avoid concrete material problems.

During his doctoral studies at the University of Illinois at Urbana-Champaign, Dr. Cong conducted extensive research on cement hydration, structure of calcium silicate hydrate (C-S-H), and ASR using solid state Nuclear Magnetic Resonance (NMR) Spectroscopy. As a post-doctoral research associate for Lawrence Livermore National Laboratory, Dr. Cong performed hydrothermal synthesis of various model compounds for C-S-H for the Yucca Mountain nuclear waste repository project. Prior to joining WJE, Dr. Cong held positions with W. R. Grace and the Erlin Company. He also taught optical mineralogy and petrography at Central South University in China.

REPRESENTATIVE PROJECTS

Petrographic Examination

- MPR Associates - Alexandria, VA: Petrographic examination and Damage Rating Index (DRI) assessment of ASR in laboratory prepared concrete anchors for investigation of structural effects of ASR, for Seabrook Nuclear Power Plant
- Palo Verde Nuclear Power Plant and Water Reclamation Facility - Tonopah, AZ: Petrographic examination of concrete cores for general characterization and distress assessment, including ASR related distress
- California Department of Transportation (Caltrans) - CA: Petrographic examination of concrete and aggregate samples for Caltrans' ASR Correlation Studies

- Sixth Street Bridge - Los Angeles, CA: Petrographic examination of ASR deteriorated concrete cores
- I-5 Undercrossing - Santa Clarita, CA: Assessment of fire-damaged concrete
- Charlotte International Airport Taxiway - Charlotte, NC: Petrographic examination of concrete cores to determine the cause of pavement cracking
- Moreton Building - Austin, TX: Petrographic and laboratory evaluation of concrete cores to assess the cause of cracking and predict the potential for DEF

Materials Investigation

- LBJ Library - Austin, TX: Laboratory evaluations of granite panels
- Randolph AFB - San Antonio, TX: Petrographic examination of aggregate samples for suitability of concrete aggregate
- Camp Mabry - Austin, TX: Historical mortar evaluation and mix proportions

Litigation Consulting

- GB Biosciences Corporation et. al. vs. Occidental Chemical Corporation, et. al - Houston, TX: Provided testimony on private arbitration regarding CFB ash samples
- Trinity Drywall Systems, LLC vs. TOKA General Contractors, Ltd., et. al. - Fort Worth, TX: Provided testimony regarding stucco problems
- Maisel Brothers, Inc. vs. Holcim (US), Inc. et. al. - Severna Park, MD: Provided technical and litigation support, including deposition on the cause of CMU block staining and popouts problems

Research and Testing

- Investigation of cementitious materials content in hardened concrete
- Investigation of mortar mix proportions

TECHNICAL COMMITTEES

- ASTM C01 - Cement
- ASTM C09 - Concrete and Concrete Aggregates
- ASTM C09.20 - Normal Weight Aggregates
- ASTM C09.26 - Chemical Reactions
- ASTM C09.65 - Petrography