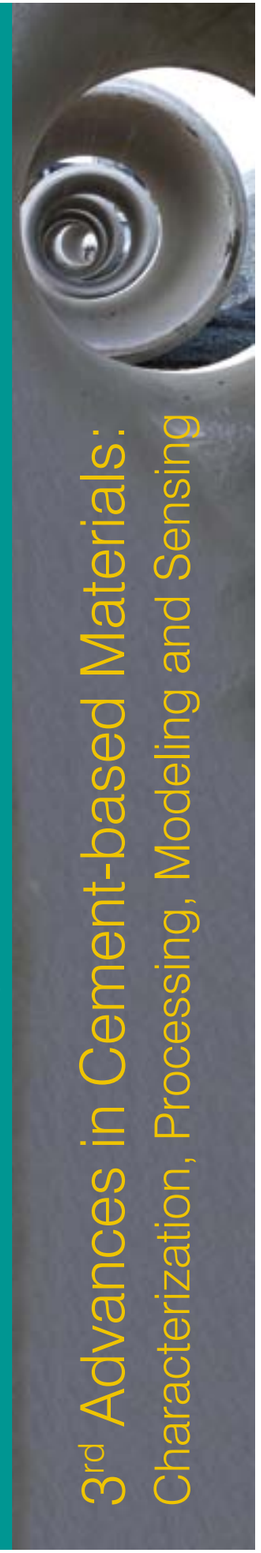
June 10-12, 2012 | University of Texas at Austin | Austin, TX

3rd Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing



10:00 – 10:15	***Cementitious characteristics of a chemically activated cupola slag*** Rosario Jasso-Teran, Jose M. Almanza Robles, J. Ivan Escalante-Garcia
10:15 – 10:30	***Multi scale chemistry and solubility characterization of chemical phases within fly ash*** Tyler Ley, Qnang Hu, Mohammad Aboustait, Jay Hanan, Jeff Davis, Volker Rose

Coffee Break

10:30 am – 11:00 am **Location: ECJ 1.202**

Alternative Binders Based on Calcium Sulfoaluminates and Calcium Carbonates

11:00 am – 12:30 pm	**Location: ECJ 1.202** Moderator: Kimberly Kurtis, Benjamin Mohr
11:00 –11:15	***The gypsum effect on CSA cement hydration*** Diana Londoño, Ariel Berrio, Jorge Iván Tobón
11:15 – 11:30	***Porosimetric study of calcium sulfoaluminate cements and its relation to freeze-thaw durability*** Kyle DeBruyn
11:30 – 11:45	***Cementitious reaction via calcium carbonate polymorphic transformation*** Irvin Chen, Patricia Lee, Miguel Fernandez
11:45 – 12:00	***Biomineralization in cement-based materials*** Zeynep Basaran, Raissa Ferron
12:00 – 12:15	***Characterization of biominerals and its effect in improving flexural strength of concrete*** Bin Zhang, Paramita Mondal, Wen-Tso Liu
12:15 – 12:30	***Thermal Properties of Wollastonite based Inorganic Phosphate Cement (IPC): effect of curing condition*** Tania Dey

Lunch on your own

12:30 pm – 1:45 pm

Geopolymers

1:45 pm – 3:30 pm	**Location: ECJ 1.202** Moderator: Jeffrey Chen, Jeffrey J. Thomas
1:45 – 2:00	***Structure of metakaolin geopolymer with calcium hydroxide using XRD and MAS-NMR*** Eric Kim, Leslie Struble, Jennifer Rapp
2:00 – 2:15	***Co-fired fly ash as a precursor for geopolymer production*** Christopher Shearer, John Provis, Susan Bernal, Kimberly Kurtis
2:15 – 2:30	***Bulk composition and microstructure dependence of effective thermal conductivity of porous inorganic polymer materials*** Elie Kamseu, Benoit Nait-Ali
2:30 – 2:45	***Mitigation of early age shrinkage in alkali activated slags through internal curing*** Aaron Sakulich, Dale Bentz
2:45 – 3:00	***Compressive strength empirical formulation on curing temperature and time of rapid-set high-strength geopolymer for highway repair and rehabilitation*** Sotya Astutiningsih

Coffee Break

3:00 pm – 3:30 pm **Location: ECJ 1.202**

Panel Discussion on Future of SCMs & Alternative Cements

3:30 pm – 4:30 pm **Location: ECJ 1.202**

THANK YOU FOR ATTENDING!

FINAL PROGRAM

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University of Texas at Austin
Austin, TX

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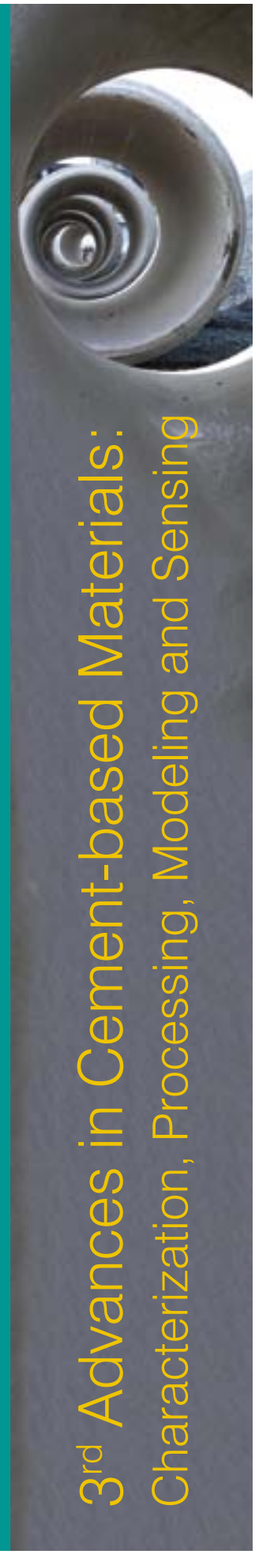

3rd Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing

Sunday, June 10, 2012

Registration

12:30 pm – 6:00 pm **Location: ECJ 1.202**

Tutorial: Novel Experimental and Computational Tools

1:30 pm – 3:15 pm **Location: ECJ 1.202**
Moderator: Maria Juenger

1:30 pm – 1:35 pm **Welcome**

1:35 pm – 2:25 pm ***Getting back to basics: How to quantify microstructure of cement paste***
Jeffrey Chen, Lafarge Centre de Recherche, France

2:25 pm – 3:15 pm ***Vertical scanning interferometry***
Rolf Arvidson, Rice University, USA

Coffee Break

3:15 pm – 3:45 pm **Location: ECJ 1.202**

Continue Tutorial

3:45 pm – 4:35 pm **Location: ECJ 1.202**
Moderator: Jeffrey Chen

Computational modeling of C–S–H
Rouzbeh Shahsavari, Rice University, USA

Poster Session and Opening Reception

5:00 pm – 7:00 pm **Location: ECJ 1.202**

Cements Division Executive Meeting

8:00 pm – 9:00 pm **Location: ECJ 4.608**

Monday, June 11, 2012

Registration

7:30 am – 6:00 pm **Location: ECJ 1.202**

Hydration Kinetics and Materials Characterization

8:30 am – 10:00 am **Location: ECJ 1.202**
Moderator: Kyle Riding, Tania Dey

8:30 – 8:45 ***Modeling the effect of calcium sulfates on C3S hydration: implications for the origin of the optimum sulfate***
Luca Valentini, Jeffrey Bullard, Gilberto Artioli

8:45 – 9:00 ***The filler effect: the influence of filler volume and surface area on cementitious reaction rates***
Tandre Oey, Aditya Kumar, Narayanan Neithalath, Jeffrey Bullard, Gaurav Sant

9:00 – 9:15 ***Modeling and simulation of the cement hydration with different water to cementitious ratio***
Yang Park, Jon Belkowitz, Frank Fisher, Christopher Samy

9:15 – 9:30 ***Three-dimensional microstructural analysis of ultra-high performance concretes using neutron imaging***
Fei Ren, Hassina Bilheux, Sophie Voisin, Jy-An Wang, Michael Lance, Beverly DiPaolo

9:30 – 9:45 ***Evaluation of nanomechanical properties: an energy-based approach***
Kaushal Jha, Nakin Suksawang, Arvind Agarwal

9:45 – 10:00 ***Broadband dielectric study of early-age concrete mortar containing internal curing materials***
Joshua Ojo, Nan Guo, Benjamin Mohr

Coffee Break

10:00 am – 10:45 am **Location: ECJ 1.202**

Degradation of Cementitious Materials

10:45 am – 12:00 pm **Location: ECJ 1.202**
Moderator: Gaurav Sant, Rouzbeh Shahsavari

10:45 – 11:00 ***Nanostructure of high-temperature cured oilwell cements***
Jeffrey J. Thomas, Andrew Allen, Simone Musso, Simon James

11:00 – 11:15 ***Nanoscale pore structure analysis of mortars undergoing delayed ettringite formation***
Daniel Keaton, Benjamin Mohr

11:15 – 11:30 ***Chemo-mechanical behavior of carbon nanofiber/cement composites exposed to aggressive environments***
Lesa Brown, Florence Sanchez

11:30 – 11:45 ***A combined approach of determining physical and chemical ASR parameters and finite element modeling to predict ASR expansive stress in a pure phase system***
Kai-Wei Liu, Anol Mukhopadhyay, Zachary Grasley

11:45 – 12:00 ***Life cycle of chromium obtaining the industrial wastes co-incineration process in the cement plant***
Suthatip Sinyoung, Puangrat Kajitvichyanukul

Lunch on your own

12:00 pm – 2:00 pm

Cohesion, Hybrids, and Composites

2:00 pm – 3:15 pm **Location: ECJ 1.202**
Moderator: Paramita Mondal, Tyler Ley

2:00 – 2:15 ***Behavior of confined water in porous C–S–H***
Patrick Bonnaud, Benoit Coasne, Roland Pellenq, Krystyn van Vliet

2:15 – 2:30 ***Mechanisms of hydrogen bonding between organic polymers and disordered material: case of poly(vinyl) alcohol and calcium-silicate-hydrate***
Rouzbeh Shahsavari

2:30 – 2:45 ***Exposing the mysterious nature of concrete viscoelasticity***
Zachary Grasley, Xiaodan Li, Edward Garboczi, Jeffrey Bullard

2:45 – 3:00 ***Producing and testing cement paste reinforced with carbon nanofibers***
Ardavan Yazdanbakhsh, Zachary Grasley

3:00 – 3:15 ***A new cement-rubber composite material with unique mechanical properties***
Simone Musso, Agathe Robisson, Jeffrey J. Thomas, Franz-Josef Ulm

Coffee Break

3:15 pm – 3:30 pm **Location: ECJ 1.202**

Cements Division Business Meeting

3:30 pm – 4:30 pm **Location: ECJ 1.202**

Della Roy Lecture, Sponsored by Elsevier

4:30 pm – 5:30 pm **Location: ECJ 1.202**
Moderator: Zachary Grasley

The Computational Materials Science of Concrete: Past - Present - Future
Edward Garboczi, National Institute of Standards and Technology, USA

Della Roy Reception, Sponsored by Elsevier

5:30 pm – 6:30 pm **Location: ECJ 1.202**

Tuesday, June 12, 2012

Registration

8:00 am – 12:00 pm **Location: ECJ 1.202**

SCMs: Reactivity and Activation

8:30 am – 10:30 am **Location: ECJ 1.202**
Moderator: Maria Juenger, Zachary Grasley

8:30 – 8:45 ***Composite portland cements with fly ash, metakaolin, ground granulated blast furnace slag and geothermal silica waste additions***
Cyndy A. Iñiguez-Sanchez, Lauren Gomez-Zamorano, Barbara Lothenbach

8:45 – 9:00 ***Study of the simultaneous effect of size and type of glass cullet, and curing temperature on the rate of glass reactivity***
Mohammadreza Mirzahosseini, Kyle Riding

9:00 – 9:15 ***Microstructure of cementitious cast stone immobilizing the hanford secondary waste***
Chul-Woo Chung, Ashutosh Goel, Nancy Washton, Laura Turo, Joseph Ryan

9:15 – 9:30 ***Preparatory treatments to clay mineral blends for use in concrete systems***
Sarah Taylor-Lange, Kyle Riding, Maria Juenger

9:30 – 9:45 ***Mechanical properties and microstructure of clay-based materials prepared with modified yellow river silts***
Lei Zhang, Jiu-jun Yang, Jun-Xia Liu, Ai-Hua Zhou

9:45 – 10:00 ***Allowing higher cement replacement by class C fly ashes: a new method***
Denise Silva, Josephine Cheung, Lawrence Roberts

THE 2011 STEPHEN BRUNAUER AWARD

On behalf of the Cements Division of The American Ceramic Society, congratulations to:

Jeffrey W. Bullard and **Robert J. Flatt**, New insights into the effect of calcium hydroxide precipitation on the kinetics of tricalcium silicate hydration. *Journal of the American Ceramic Society*, 2010. 93(7): p. 1894-1903

The Brunauer Award is awarded annually to the author(s) of the best refereed paper on cements published during the previous calendar year in the *Bulletin* or the *Journal of the American Ceramic Society*. This award honors Dr. Stephen Brunauer, who spent much of his career studying cements. A native of Hungary, Brunauer came to the United States in 1921 and received a PhD from Johns Hopkins University in 1933. He was a professor emeritus of Clarkson University in Potsdam, NY when he died in 1986. He is perhaps best known as an author of the famous 1938 BET paper (Brunauer, Emmett, and Teller) on "Adsorption of Gases in Multi-Molecular Layers." His contributions to cements include a well known microstructural model of the C-S-H gel phase of cement paste. Stephen Brunauer received the Cements Division Award of Distinction, later renamed the Copeland Award, in 1977.