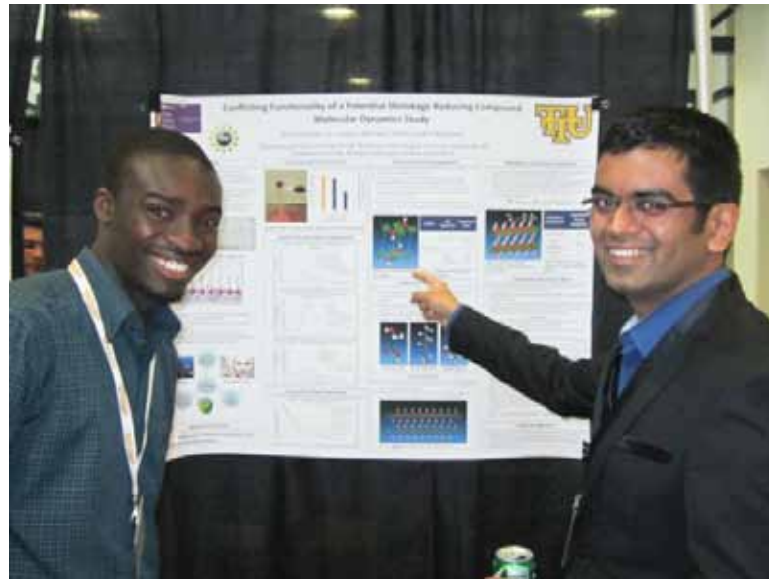


## POSTER SESSION

Monday, July 20 | 5:00 – 7:00 pm | Fiedler Atrium

- **Discerning the mechanism of interaction for organic molecules used as admixtures in portland cement**  
Ojas Chaudhari, Ben McComb, Mariah Martinez, Joseph Biernacki, Scott Northrup
- **Investigation of Aggregate Size Distribution of Concrete by X-Ray Micro Computed Tomography**  
Ghazal Sokhansefat, Tyler Ley, Daniel Cook
- **Portland Cement with Colombian natural fibers**  
Henry Colorado
- **Development of High Strength Radiation Damage-Tolerant Boron Nitride Cement Composite**  
Sakineh Ebrahimpourmoghaddam, Vahid Hejazi, Joseph Carazzone, Joseph Miller, Di Chen, Lin Shao, Kenton Whitmire, Rouzbeh Shahsavari
- **Building and refractory's cements based on synthesized additives from wastes of industry**  
Nickolay Iliukha, Valentina Timofeeva
- **The influence of specific surface area of inert fillers on rheological behavior of filler-water suspensions**  
Bruno Daminelli, John Vanderley, Rafael Pileggi
- **Environmentally friendly mortars with coal fly ashes as cementitious binder**  
Gang Xu, Xianming Shi
- **Impact of the mineralogy and local atomic structure of neat slags on the phase formation in alkali-activated slag pastes**  
Kai Gong, Claire White
- **Impact of Curing Time and Activator Chemistry on the Intrinsic Permeability of Alkali-Activated Pastes**  
Catherine Eiben, Anna Blyth, George Scherer, Claire White
- **Characterization and Treatment of Low-Quality Fly Ash for the Synthesis of Geopolymer Cements**  
Juan Pablo Gevaudan, Wil Srubar
- **Observations on the rheological response of cement pastes subjected to different mixing methods**  
Raissa Douglas Ferron, Dongyeop Han
- **Simulated irreversible desiccation shrinkage associated with cement grain dissolution**  
Xiaodan LI, Zachary Grasley, Jeffrey Bullard
- **Creep and relaxation of concrete caused by ice melting in the pore network**  
Xiaodan LI, Zachary Grasley, Syeda Rahman
- **Effects of polyvinyl alcohol microfibers and carbon nanofibers on restrained shrinkage cracking in mortars**  
Joshua Hogancamp, Zachary Grasley



- **Effect of Decalcification on Permeability in Concrete**  
Jeffryd Rose, Zachary Grasley
- **Compatibility of chemical admixtures with limestone metakaolin ternary blended cement**  
Behnaz Zaribaf, Kimberly Kurtis
- **Direct Comparisons of Experimental and Large-Scale Computational Measurements of Hydrating C3S Particles**  
Jeffrey Bullard, Tyler Ley, Ginang Hu, John Hagedorn, Romain Desaymons, Judith Terrill
- **Ultrasonic Scattering Measurement of Air Voids Distribution in Early-Stage and Hardened Concrete Samples**  
Guo Shuaicheng, Xiao Sun, Qingli Dai
- **A comparison between phase ratios and strength development in OPC produced using alternative fuels**  
Sorour Semsari Parapari, Pozhhan Mokhtari, Mehmet Ali Gülgün, Melih Papila
- **Carbonation evaluation of alkali-activated slag concrete**  
Sara Ghahramani, Aleksandra Radlinska
- **Measuring and predicting humidity and temperature profile distribution inside concrete crossties**  
Daniel Castaneda, Kyle A. Riding, David A. Lange
- **Reactivity and reaction products of pure calcium silicates for hydration and carbonation reactions**  
Warda Ashraf, Jan Olek
- **Study of Sulfate Resistance of Carbonated Calcium Silicate Systems**  
Raikhan Tokpatayeva, Jan Olek, Vahit Atakan
- **Physical and Chemical Interaction of Air-Entraining Agents with Paste and Ash**  
Lori Tunstall, George Scherer
- **Multi-scale Characterization of organo-cements using Microscopic Scratch Tests and Statistical Nano-Indentation**  
Ange Akono, Kevin Anderson, Leslie Struble
- **A novel approach to measure the chemical shrinkage of hydrating well cement under elevated temperature and pressure**  
Yige Zhang, Catherine Bouillon, Jeffrey Chen
- **Effects of Aluminum on Synthesized Tobermorite**  
Xiaolu Guo, Fanjie Meng, Huisheng Shi, Leslie Struble, William Hunnicutt, Paramita Mondal

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# 6<sup>TH</sup> ADVANCES IN CEMENT-BASED MATERIALS

July 20 – 22, 2015

Kansas State University  
Manhattan, Kan., USA

## advance program

Organized by:  
The Cements Division of



Sponsored by:



6<sup>TH</sup>

ADVANCES IN CEMENT-BASED MATERIALS

July 20 – 22, 2015

Kansas State University Manhattan, Kan., USA

MONDAY, JULY 20, 2015

Noon - 7:00 pm	<b>Registration</b>
Noon - 4:00 pm	<b>Tutorial: Service Life Modeling</b> , Fiedler Auditorium
5:00 - 7:00 pm	<b>Poster Session</b> , Fiedler Atrium
7:00 - 8:00 pm	<b>Cements Division Executive Meeting</b> , Durland Hall, Rm. 1044
7:00 - 8:00 pm	<b>Student Reception</b> , Bluemont Hotel

TUESDAY, JULY 21, 2015

Session 1   CEMENT CHEMISTRY/ HYDRATION   8:30 – 10:05 am Fiedler Auditorium	
8:30 – 8:35 am	<b>Open Program / Welcome</b> , Fiedler Auditorium
8:35 – 8:50 am	<b>Influence of C-S-H growth morphology on the early-age hydration of C3S</b> , Joshua Arnold, Jeffrey Bullard
8:50 – 9:05 am	<b>Hydrogen tunnelling in Portlandite [Ca(OH)2] under pressure</b> , Romain Dupuis, Jorge Dolado, Jose Surga, Andrés Ayuela
9:05 – 9:20 am	<b>Effect of Induced Stresses on Cement Paste Compositions</b> , Christopher Galitz, Zachary Grasley
9:20 – 9:35 am	<b>Development of Green cement, based on partial replacement of Clinker with limestone powder</b> , Yaniv Knop
9:35 – 9:50 am	<b>Direct three dimensional observations of the microstructure and chemistry of the hydration of C3S</b> , Qinang Hu, Tyler Ley, Mohammed Aboustait, Robert Winarski, Volker Rose
9:50 – 10:30 am	<b>BREAK</b> , Fiedler Atrium
Session 2   MODELING   10:30 – 11:45 am Fiedler Auditorium	
10:30 – 10:45 am	<b>A mesoscale investigation of the alkali-activation reaction using coarse-grained Monte Carlo simulations</b> , Kengran Yang, Claire White
10:45 – 11:00 am	<b>Creep and relaxation of cement paste associated with stress-induced dissolution of hydrates</b> , Xiaodan Li, Zachary Grasley
11:00 – 11:15 am	<b>Diffusion and simultaneous chemical reaction modeling of sulfate attack in cement paste</b> , Pan Feng, Jeffrey Bullard
11:15 – 11:30 am	<b>Modeling Hydration of C3S with SimBNG</b> , George Scherer
11:30 am – 11:45	<b>Compositional Variability of C-S-H in Cement Hydration Modeling</b> , Jeffrey Bullard, George Scherer, Joshua Arnold
Noon – 12:30 pm	<b>CEMENTS DIVISION MEETING</b>
12:30 – 1:45 pm	<b>LUNCH</b> , (provided) Fiedler Atrium

Session 3   NANO/ MICROSCALE MATERIAL CHARACTERIZATION 10:30 am – Noon   2144 Fiedler Hall	
10:30 – 10:45 am	<b>Powers’ model and the early-age shrinkage of portland limestone cements</b> , Elizabeth Nadelman, Kimberly Kurtis
10:45 – 11:00 am	<b>Vibration of Fresh Concrete – A New Approach to an Old Concern</b> , David A. Lange, Jeremy Koch, Daniel Castenada
11:00 – 11:15 am	<b>Structure and pozzolanic reactivity of calcined clays in Portland cement blends from solid-state NMR spectroscopy</b> , Jørgen Skibsted, Nishant Garg, Zhuo Dai, Kasper Enemark-Rasmussen
11:15 – 11:30 am	<b>Effect of lightweight aggregate properties on its efficiency as internal curing agent</b> , Semion Zhutovsky, Konstantin Kovler
11:30 – 11:45 am	<b>MWCNT reinforced mortars for enhanced durability, strength, and toughness</b> , Surendra Shah, Maria Konsta-Gdoutos
11:45 – Noon	<b>Path dependent failure analysis of cementitious materials using granular micromechanics</b> , Payam Poorsolhjoui, Anil Misra
Noon – 12:30 pm	<b>CEMENTS DIVISION MEETING</b>
12:30 – 1:45 pm	<b>LUNCH</b> , (provided) Fiedler Atrium

Session 4   DURABILITY   1:45 – 3:30 pm Fiedler Auditorium	
1:45 – 2:00 pm	<b>Effect of Curing on Sulfate Resistance Test Results</b> , Diana Gagatek, R. Doug Hooton
2:00 – 2:15 pm	<b>Fundamental Structure-Property Relationships of Superabsorbent Polymers in Ionic Solutions and their Implications for Internal Curing of Concrete</b> , Matthew Krafcik, Kendra Erk
2:15 – 2:30 pm	<b>Thermally Resistant Cement Designs for Geothermal Wellbore Applications</b> , Ruixuan Guo, Kolawole Bello, Mileva Radonjic
2:30 – 2:45 pm	<b>Composition-Rheology Relationships of ASR Gels and Their Effects on the Extent of ASR Damage</b> , Asghar Gholizadeh Vayghan, Farshad Rajabipour
2:45 – 3:00 pm	<b>Advanced Characterization of Alkali-Silica Reaction (ASR) Gel Development in Specially-Prepared Mortar Specimens with Recycled Glass Particles</b> , Xiao Sun, Guo Shuaicheng, Qingli Dai
3:00 – 3:15 pm	<b>Modifications to the Accelerated Mortar Bar Test</b> , Farideh Golmakani, R. Doug Hooton
3:15 – 3:30 pm	<b>Towards an Ideal ASR Performance Test</b> , Stephen Salwocki, Farshad Rajabipour
3:30 – 4:00 pm	<b>BREAK</b> , Fiedler Atrium

Session 5   SMART MATERIALS   1:45 – 3:30 pm 2144 Fiedler Hall	
1:45 – 2:00 pm	<b>Perspective on peptide-inorganic interfaces using ab initio approach</b> , Lokendra Poudel, Candan Tamerler, Chamila Dharamawardhana, Anil Misra, Wai-Yim Ching
2:00 – 2:15 pm	<b>Microstructure-Controlled Synthesis of Novel Cement-Based Membranes</b> , Vahid Hejazi, Sakineh Ebrahimpourmoghaddam, Joseph Miller, Rouzbeh Shahsavari
2:15 – 2:30 pm	<b>Effect of roadside weathering on removal of nitrogen oxides by photocatalytic concrete coatings</b> , Clement Cros, Alexandra Terpeluk, Neil Crain, Maria Juenger
2:30 – 2:45 pm	<b>Dissolution kinetics, solubility, and stability of biogenic calcium carbonate used to enhance properties of porous infrastructure materials</b> , Raissa Douglas Ferron, Sarah L. Williams, Mary Jo Kirisits
2:45 – 3:00 pm	<b>Structure and Properties of Hydrogrossular Series</b> , Puja Adhikari, Chamila Dharmawardhana, Wai-Yim Ching
3:00 – 3:15 pm	<b>Self sensing carbon nanofiber reinforced concrete</b> , Maria Konsta-Gdoutos, Emmanuel Gdoutos
3:15 – 3:30 pm	<b>Quantum Mechanical Metric for Internal Cohesion in Cement Crystals</b> , Chamila Dharmawardhana, Anil Misra, Wai-Yim Ching
3:30 – 4:00 pm	<b>BREAK</b> , Fiedler Atrium

<b>DELLA ROY LECTURE:</b>	<b>4:00 – 5:00 pm</b> Fiedler Auditorium <i>Review of Hamlin Jennings’ Contributions to Cements</i>
<b>DELLA ROY RECEPTION &amp; CONFERENCE DINNER</b>	(Sponsored by Elsevier) <b>6:00 – 9:00 pm</b> Bluemont Hotel

WEDNESDAY, JULY 22, 2015

Session 6   GEOPOLYMERS   8:30 – 10:05 am Fiedler Auditorium	
8:30 – 8:35 am	<b>Open Program / Welcome</b>
8:35 – 9:05 am	<b>KEYNOTE: Elucidating the kinetics and thermodynamics of alkali-activated materials using high-energy X-ray and neutron scattering</b> , Claire White
9:05 – 9:20 am	<b>Microstructural changes in alkali-activated slag due to drying and its implication for shrinkage</b> , Hailong Ye, Aleksandra Radlinska, Farshad Rajabipour
9:20 – 9:35 am	<b>Fly-ash based geopolymers: understanding the precursor-to-product composition relationships</b> , Trevor Williamson, Maria Juenger, Gaurav Sant
9:35 – 9:50 am	<b>Effects of Calcium on Setting of Geopolymers</b> , Xu Chen, Leslie Struble
9:50 – 10:05 am	<b>Effect of the Activator Solution and Slag Incorporation on Shrinkage of Alkali Activated Fly Ash/Slag Blended Binders</b> , Maryam Hojati, Aleksandra Radlinska
10:05 – 10:30 am	<b>BREAK</b> , Fiedler Atrium

Session 7   ADMIXTURES   10:30 – 11:45 am Fiedler Auditorium	
10:30 – 10:45 am	<b>Impact of Diethanolisopropanolamine on Hydration of a ternary system with fly ash and limestone</b> , Leslie Jardine, Josephine Cheung, Richard Sibbick, Jeff Nicolich, Joshua Detellis
10:45 – 11:00 am	<b>Impact of polycarboxylate superplasticizers on poly-phased clinker hydration</b> , Delphine Marchon, Patrick Juilland, Lukas Frunz, Marta Palacios, Robert Flatt
11:00 – 11:15 am	<b>New insight on superplasticizers adsorption from the perspective of competitive adsorption</b> , Delphine Marchon, Robert Flatt
11:15 – 11:30 am	<b>Effects of high dosages of corn starch on high w/c portland cement mortars</b> , Anne Werner, Alexis Schad
11:30 – 11:45 am	<b>Recycling battery waste in Portland cement</b> , Henry Colorado
11:45 – 1:15 pm	<b>LUNCH</b> (on your own)

Session 8   ALTERNATIVE CEMENTITIOUS MATERIALS 10:30 – 11:45 am   2144 Fiedler Hall	
10:30 – 10:45 am	<b>Scanning Transmission X-ray Microscopy Study on Alkali-Activated Biomass-Derived Fly Ash</b> , Christopher Shearer
10:45 – 11:00 am	<b>Relationship between phase assemblage in calcined clay blends and reactivity as SCMs</b> , Sarah Taylor-Lange, Maria Juenger, Kyle Riding
11:00 – 11:15 am	<b>Drinking Water Treatment Residual as a Cement Replacement with Internal Curing Properties</b> , John Kevern, Claire Nowasell
11:15 – 11:30 am	<b>Understanding Calcium Sulfoaluminate Cement-Admixture Interactions</b> , Lisa Burris, Kimberly Kurtis
11:30 am – 11:45	<b>Low temperature belite binder</b> , Tim Link, Horst-Michael Ludwig, Frank Bellman, Mohsen ben-Haha
11:45 – 1:15 pm	<b>LUNCH</b> (on your own)

Session 9   MESO/MACROSCALE MATERIAL CHARACTERIZATION 1:15 – 3:00 pm   Fiedler Auditorium	
1:15 – 1:45 pm	<b>KEYNOTE: Rheology: A Powerful Tool to Predict Concrete Pumping Pressure</b> , Dimitri Feys
1:45 – 2:00 pm	<b>Supercritical Drying of Cement</b> , Zhidong Zhang, George Scherer
2:00 – 2:15 pm	<b>The Role of Concrete Maturity in Resistivity-Based Performance Specifications</b> , Gita Charmchi, R. Doug Hooton
2:15 – 2:30 pm	<b>Air void analysis in concrete: State-of-the-art approaches of air measurement and future challenges</b> , Yu Song, Ruofei Zou, David A. Lange
2:30 – 2:45 pm	<b>Automated Scanning Electron Microscopy: Systematic Procedure and Application to Particulate Materials</b> , Taehwan Kim, M. Tyler Ley, Mohammed Aboustait, Jeffery M. Davis, Jeffery W. Bullard, Pouya Amrollahi
2:45 – 3:00 pm	<b>Influence of Mix Design Parameters on Dynamic Segregation of Self-Consolidating Concrete</b> , Dimitri Feys, Aida Margarita Ley Hernandez