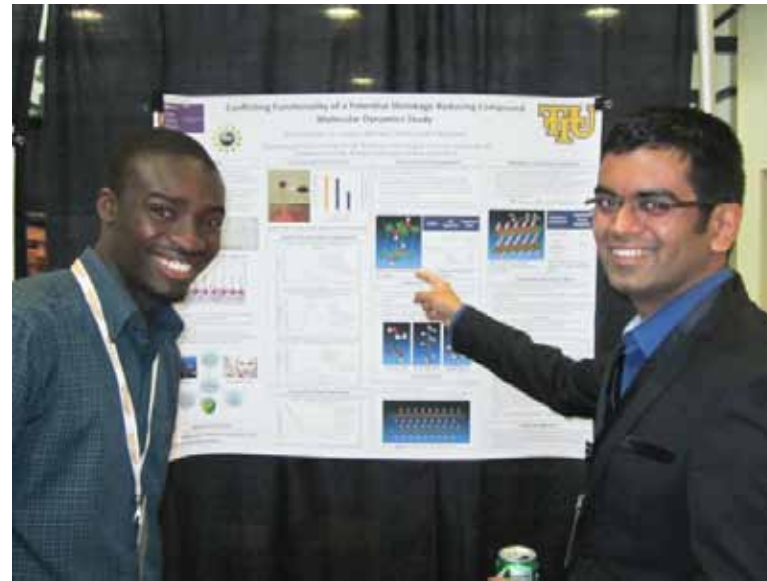


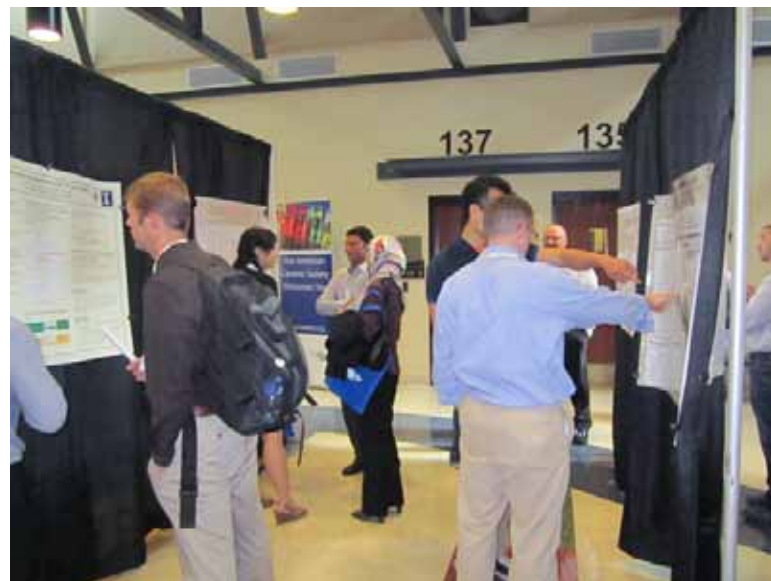
## POSTER SESSION

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

- **Portland Cement with Colombian natural fibers**  
Henry Colorado
- **Development of High Strength Radiation Damage-Tolerant Boron Nitride Cement Composite**  
Sakineh Ebrahimpourmoghaddam, Vahid Hejazi, Joseph Miller, 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 **Registration**  
 Noon - 4:00 pm **Tutorial: Service Life Modeling**, Fiedler Auditorium  
 5:00 - 7:00 pm **Poster Session**, Fiedler Atrium  
 7:00 - 8:00 pm **Cements Division Executive Meeting**  
 7:00 - 8:00 pm **Student Reception**, Bluemont Hotel

## TUESDAY, JULY 21, 2015

### Session 1 | CEMENT CHEMISTRY/HYDRATION | 8:30 – 10:05 am Fiedler Auditorium

8:30 – 8:35 am **Open Program / Welcome**, Fiedler Auditorium  
 8:35 – 8:50 am **Influence of C-S-H growth morphology on the early-age hydration of C3S**, Joshua Arnold, Jeffrey Bullard  
 8:50 – 9:05 am **Direct three dimensional observations of the microstructure and chemistry of the hydration of C3S**, Qinang Hu, Tyler Ley, Mohammed Aboustait, Robert Winarski, Volker Rose  
 9:05 – 9:20 am **Hydrogen tunnelling in Portlandite [Ca(OH)<sub>2</sub>] under pressure**, Romain Dupuis, Jorge Dolado, Jose Surga, Andrés Ayuela  
 9:20 – 9:35 am **Effect of Induced Stresses on Cement Paste Compositions**, Christopher Galitz, Zachary Grasley  
 9:35 – 9:50 am **Development of Green cement, based on partial replacement of Clinker with limestone powder**, Yaniv Knop  
 9:50 – 10:05 am **Investigation of the Transition Between the Induction and Acceleration Period with X-Ray Computed Tomography**, Tyler Ley, Masoud Moradian, Qinang Hu, Mohammed Aboustait  
 10:05 – 10:30 am **BREAK**, Fiedler Atrium

### Session 2 | MODELING | 10:30 am – Noon Fiedler Auditorium

10:30 – 10:45 am **The Physical Origins of Thermal Properties of Hydrating Cement Paste**, Mohammad Javad Abdhosseini Qomi, Franz-Josef Ulm, Roland Pellenq  
 10:45 – 11:00 am **Path dependent failure analysis of cementitious materials using granular micromechanics**, Payam Poorsolhjoui, Anil Misra  
 11:00 – 11:15 am **Creep and relaxation of cement paste associated with stress-induced dissolution of hydrates**, Xiaodan Li, Zachary Grasley  
 11:15 – 11:30 am **Diffusion and simultaneous chemical reaction modeling of sulfate attack in cement paste**, Pan Feng, Jeffrey Bullard  
 11:30 – 11:45 am **Modeling Hydration of C3S with SimBNG**, George Scherer

11:45 am – Noon **Compositional Variability of C-S-H in Cement Hydration Modeling**, Jeffrey Bullard, George Scherer, Joshua Arnold  
 Noon – 1:15 pm **LUNCH**, Fiedler Atrium

### Session 3 | NANO/ MICROSCALE MATERIAL CHARACTERIZATION 10:30 – 11:45 am | 2144 Fiedler Hall

10:30 – 10:45 am **Powers' model and the early-age shrinkage of portland limestone cements**, Elizabeth Nadelman, Kimberly Kurtis  
 10:45 – 11:00 am **Vibration of Fresh Concrete – A New Approach to an Old Concern**, David A. Lange, Jeremy Koch, Daniel Castenada  
 11:00 – 11:15 am **Investigation of Aggregate Size Distribution of Concrete by X-Ray Micro Computed Tomography**, Ghazal Sokhansefat, Tyler Ley, Daniel Cook  
 11:15 – 11:30 am **Effect of lightweight aggregate properties on its efficiency as internal curing agent**, Semion Zhutovsky, Konstantin Kovler  
 11:30 – 11:45 am **MWCNT reinforced mortars for enhanced durability, strength, and toughness**, Surendra Shah, Maria Konsta-Gdoutos  
 Noon – 1:15 pm **LUNCH**, Fiedler Atrium

### Session 4 | DURABILITY | 1:15 – 3:00 p.m. Fiedler Auditorium

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

### Session 5 | SMART MATERIALS | 1:15 – 3:00 pm 2144 Fiedler Hall

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

**CEMENTS DIVISION MEETING 3:30 – 4:00 pm** Fiedler Auditorium

**DELLA ROY LECTURE: 4:00 – 5:00 pm** Fiedler Auditorium  
**Review of Hamlin Jennings' Contributions to Cements**

**DELLA ROY RECEPTION (Sponsored by Elsevier) & CONFERENCE DINNER 6:30 – 9:00 pm** Bluemont Hotel

## WEDNESDAY, JULY 22, 2015

### Session 6 | GEOPOLYMERS | 8:30 – 10:05 am Fiedler Auditorium

8:30 – 8:35 am **Open Program / Welcome**  
 8:35 – 9:05 am **KEYNOTE: A mesoscale investigation of the alkali-activation reaction using coarse-grained Monte Carlo simulations**, Claire White, Kengran Yang  
 9:05 – 9:20 am **Microstructural changes in alkali-activated slag due to drying and its implication for shrinkage**, Hailong Ye, Aleksandra Radlinska, Farshad Rajabipour  
 9:20 – 9:35 am **Fly-ash based geopolymers: understanding the precursor-to-product composition relationships**, Trevor Williamson, Maria Juenger, Gaurav Sant  
 9:35 – 9:50 am **Effects of Calcium on Setting of Geopolymers**, Xu Chen, Leslie Struble  
 9:50 – 10:05 am **Effect of the Activator Solution and Slag Incorporation on Shrinkage of Alkali Activated Fly Ash/Slag Blended Binders**, Maryam Hojati, Aleksandra Radlinska  
 10:05 – 10:30 am **BREAK**, Fiedler Atrium

### Session 7 | ADMIXTURES | 10:30 a.m. – Noon Fiedler Auditorium

10:30 – 10:45 am **Impact of Diethanolisopropanolamine on Hydration of a ternary system with fly ash and limestone**, Leslie Jardine, Josephine Cheung, Richard Sibbick, Jeff Nicolich, Joshua Detellis  
 10:45 – 11:00 am **Impact of polycarboxylate superplasticizers on polyphased clinker hydration**, Delphine Marchon, Patrick Juilland, Lukas Frunz, Marta Palacios, Robert Flatt  
 11:00 – 11:15 am **New insight on superplasticizers adsorption from the perspective of competitive adsorption**, Delphine Marchon, Robert Flatt  
 11:15 – 11:30 am **Effects of high dosages of corn starch on high w/c portland cement mortars**, Anne Werner, Alexis Schad  
 11:30 – 11:45 am **Discerning the mechanism of interaction for organic molecules used as admixtures in portland cement**, Ojas Chaudhari, Ben McComb, Mariah Martinez, Joseph Biernacki, Scott Northrup  
 11:45 am – Noon **Recycling battery waste in Portland cement**, Henry Colorado  
 Noon – 1:30 pm **LUNCH** (on your own)

### Session 8 | ALTERNATIVE CEMENTITIOUS MATERIALS 10:30 am – Noon | 2144 Fiedler Hall

10:30 – 10:45 am **Scanning Transmission X-ray Microscopy Study on Alkali-Activated Biomass-Derived Fly Ash**, Christopher Shearer  
 10:45 – 11:00 am **Relationship between phase assemblage in calcined clay blends and reactivity as SCMs**, Sarah Taylor-Lange, Maria Juenger, Kyle Riding  
 11:00 – 11:15 am **Drinking Water Treatment Residual as a Cement Replacement with Internal Curing Properties**, John Keavern, Claire Nowasell  
 11:15 – 11:30 am **Structure and pozzolanic reactivity of calcined clays in Portland cement blends from solid-state NMR spectroscopy**, Jørgen Skibstead, Zhuo Dai, Kasper Enemark-Rasmussen, Nishant Garg  
 11:30 – 11:45 am **Understanding Calcium Sulfoaluminate Cement-Admixture Interactions**, Lisa Burris, Kimberly Kurtis  
 11:45 am – Noon **Low temperature belite binder**, Tim Link, Horst-Michael Ludwig, Frank Bellman, Mohsen ben-Haha  
 Noon – 1:30 pm **LUNCH** (on your own)

### Session 9 | MESO/MACROSCALE MATERIAL CHARACTERIZATION 1:30 – 3:00 pm | Fiedler Auditorium

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