

**POSTER SESSION** Monday, June 26, 2017 | 5:00 – 7:00 pm | Press A/B  
 Student Reception | 7:00 – 9:00 pm | Tech Rec

- **Calcite dissolution rate spectra measured by digital holographic microscopy**  
Alexander Brand, Pan Feng and Jeffrey Bullard
- **Mechanisms of sulfate attack in alkali-activated slag**  
Kai Gong and Claire White
- **Evaluation of the VCCTL as a replacement for physical testing using traditional laboratory proficiency metrics**  
Benjamin Watts, Chengcheng Tao, Christopher Ferraro and Forrest Masters
- **Properties at early age of ultra-high volume mineral admixture mass concrete**  
Zhifang Zhao and Hougui Zhou
- **Using x-ray fluorescence to assess the composition and early age properties of cementitious pore solutions**  
Marisol Tsui Chang, Prannoy Suraneni and W. Jason Weiss
- **Prediction of fly ash characterization and performance using ASEM analysis**  
Shinhyu Kang, Taehwan Kim, Tyler Ley and Jeff Davis
- **Computational and experimental analysis of mechanical and transport properties of rubberized concrete**  
Ruizhe Si, Qingli Dai and Jiaqing Wang
- **Laboratory performance of rubber-modified self-consolidating and ultra-high performance concrete**  
Ruizhe Si, Qingli Dai, Shuaicheng Guo, Jiaqing Wang and Song Han
- **Sensitivity of workability loss of flowable cement paste to small changes in constituent elements and mixing procedure**  
Azadeh A. Asghari, Dimitri Feys and Geert De Schutter
- **Freeze-thaw crack determination in cementitious materials using 3D x-ray computed tomography and acoustic emission**  
Yasmina Shields, Yaghoob Farnam, Edward Garboczi and Jason Weiss
- **Rapid reinforcing bar non-uniform corrosion--test method, mechanism and corrosion layer distribution model**  
Chuanqing Fu, Xianyu Jin and Jiamin Liu
- **Study on influence of asphalt emulsion on the hydration of asphalt modified Portland cement mortar**  
Jinxiang Hong, Kejin Wang and Wei Li
- **Experimental studies and analyses on the role of fibres and recycled aggregates in enhancing the durability and sustainability of SCC concrete structures**  
T. A. Rajha Rajeswaran, A Ravichandran and S Kothandaraman
- **Evaluation of bond strength between newly-cast concrete and pre-existing substrate concrete using third-point flexural bond test**  
Zhengqi Li, Prasada Rangaraju and Jigar Desai
- **A calcium silicate hydrate model builder and accurate force field parameters for atomistic simulations of C-S-H polymorphs using INTERFACE-MD**  
Darice Guittet, Tariq Jamil, Ratan K. Mishra and Hendrik Heinz
- **Wear and strength characteristics of nano-engineered crumbed-rubber concrete**  
Jiaxin Chen, Caroline Johnson, Sakdirat Kaewunruen and Ange-Therese Akono
- **Extending benefits of self-consolidating concrete by incorporating synthetic fibers**  
Abhishek Master, Dongshuo Ji and David Lange
- **Expanding reuse options for recycled concrete aggregate**  
La Sasha Walker, Reginald Desroches and Kimberly Kurtis
- **Composition, structure and strength of metakaolin geopolymers with and without calcium**  
Xu Chen, Eric Kim, Leslie J. Struble
- **Use of R3 rapid screening test to determine reactivity and chloride binding potential of locally available kaolinite clay**  
Jude Lori Saint Rome, Mohammed Almarshoud and Kyle A. Riding
- **Microstructure of chemically activated gamma-dicalcium silicate**  
Warda Ashraf and Jan Olek
- **Evaluation of pozzolanic activity of reclaimed and remediated Ashes**  
Saif Al-Shmaisani, Ryan Kalina, Maria Juenger and Raissa Ferron
- **Modeling the local structure of ground granulated blast-furnace slag by combining multiple computational tools**  
Kai Gong, Ongun Özçelik and Claire White
- **Investigation of the mass transport properties of ACMs,**  
Mehdi Khanzadeh Moradillo, Amir Behravan, and M. Tyler Ley



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The Cements Division of

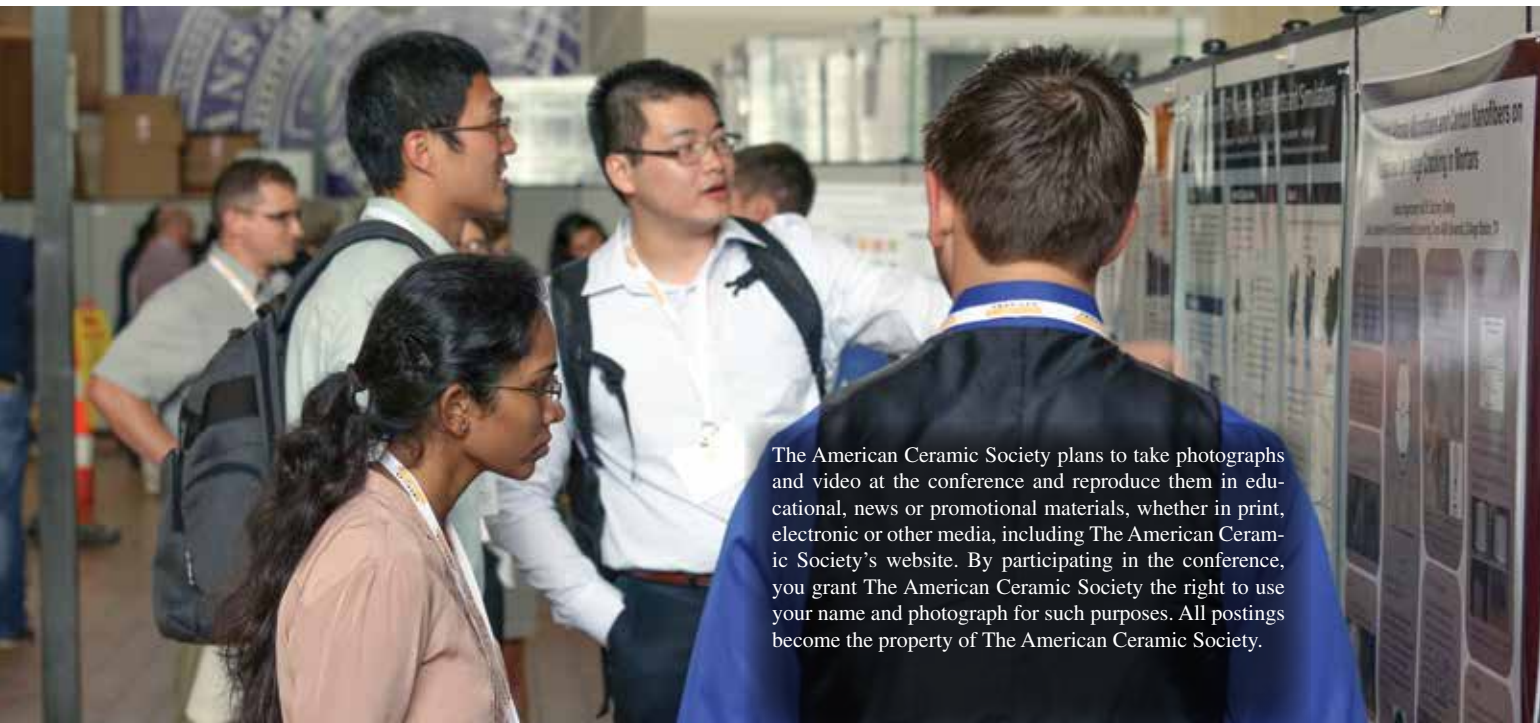
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**FINAL PROGRAM**

**8<sup>th</sup> Advances in Cement-Based Materials (Cements 2017)**

**JUNE 26-28, 2017**

Georgia Tech | Bill Moore Student Success Center | Atlanta, Georgia



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## MONDAY, JUNE 26, 2017

### President's A/B

12:30 – 12:50 pm	<b>Welcome and Introduction</b>
12:50 – 1:50 pm	<i>Enabling low-energy post-combustion CO<sub>2</sub> capture via advanced separation systems</i> , <b>Ryan Lively</b>
1:50 – 2:15 pm	<i>Carbon dioxide transformation potential using microalgae</i> , <b>Edgar Martínez</b> and <b>Gabriel Vargas</b>
2:15 – 2:40 pm	<i>Low-lime calcium silicate cement: Reaction products and their properties</i> , <b>Warda Ashraf</b> , <b>Jan Olek</b> , <b>Jitendra Jain</b> and <b>Anuj Seth</b>

### 20 Minute Break

<b>President's A/B</b>	<b>MODERATOR: Paramita Mondal</b>
3:00 – 4:20 pm	<b>Student and Young Professional Showcase</b> <i>Creep and relaxation of early-age cement paste associated with stress-induced dissolution of hydrates</i> , <b>Xiaodan Li</b> , <b>Zachary Grasley</b> and <b>Tyler Ley</b>

*In situ* nanoscale measurement of gypsum dissolution rates by digital holographic microscopy, **Pan Feng**, **Jeffrey Bullard**, **Alexander Brand** and **Lei Chen**

*Characterization of amorphous calcium carbonate and pore solution during accelerated carbonation of alkali-activated slag*, **Eric McCaslin** and **Claire White**

*Pore structure refinement of cement paste incorporating nanosilica: Study with dual beam SEM/FIB*, **Seungmin Lim** and **Shiho Kawashima**

<b>President's C/D</b>	<b>MODERATOR: Dimitri Feys</b>
3:00 – 4:40 pm	<b>Student and Young Professional Showcase</b>

*Study of the thixotropic behavior of fresh cement paste modified with micro- and nano-sized materials/particles*, **Piyush Lunkad** and **Dimitri Feys**

*Can the resistance of alternative cementitious binder systems to ASR be assessed by AMBT?* **Prasanth Alapati** and **Kimberly Kurtis**

*Crushing behavior of foam concrete*, **Yu Song**, **Chuanyue Shen** and **David Lange**

*Study of sulfate resistance of carbonated low-lime calcium silicate systems*, **Raikhan Tokpatayeva**, **Jan Olek** and **Jitendra Jain**

*Effect of reclaimed and remediated ashes on concrete and mortar performance*, **Ryan Kalina**, **Saif Al-Shmaisani**, **Maria Juenger** and **Raissa Ferron**

### 20 Minute Break

<b>Press A/B</b>	<b>Poster Session</b>
5:00 – 7:00 pm	

<b>Tech Rec</b>	<b>Student Reception</b>
7:00 – 9:00 pm	

## TUESDAY, JUNE 27, 2017

<b>DURABILITY   President's A/B   MODERATOR: Kyle Riding</b>	
8:20 – 9:40 am	<i>Evaluation of the porosity gradient in a cementitious waste form after carbonation</i> , <b>Janelle Branch</b> , <b>Peng Zhang</b> , <b>Andrew Garrabrants</b> and <b>David Kosson</b> <i>The role of environmental conditions on the rate of carbonation and leaching from a cementitious waste Form</i> , <b>Peng Zhang</b> , <b>Janelle Branch</b> , <b>Andrew Garrabrants</b> , <b>Rossane Delapp</b> , <b>Ofra Klein-Bendavid</b> and <b>David Kosson</b> <i>Selected durability characteristics of geopolymer mortars produced from fly ash, ground glass fiber and glass powder</i> , <b>Hassan Rashidian</b> and <b>Prasad Rangaraju</b> <i>Effect of carbonation on the volume change mechanisms of alkali-activated slag</i> , <b>Hailong Ye</b> and <b>Aleksandra Radlinska</b>

<b>NOVEL AND SUSTAINABLE MATERIALS   President's C/D</b>	
<b>MODERATOR: Chris Schearer</b>	
8:20 – 9:40 am	<i>Analytical and computational analysis of strength properties of geopolymer composites</i> , <b>Amrita Kataruka</b> , <b>Erman Guleryuz</b> , <b>Seid Koric</b> , <b>Waltraud M. Kriven</b> and <b>Ange-Therese Akono</b> <i>Nanoscale modelling and simulation of metakaolin geopolymer binders</i> , <b>Francesca Lolli</b> , <b>Enrico Masoero</b> , <b>Hegoi Manzano</b> and <b>Maria Chiara Bignozzi</b> <i>Effect of different ingredients of UHPC on modulus of elasticity using response surface modelling</i> , <b>Mohammad Ali Mosaberpanaah</b> and <b>Ozgur Eren</b> <i>Bio-inspired cementitious material: Effect of biopolymers on calcium-silicate-hydrate</i> , <b>Mahsa Kamali</b> and <b>Ali Ghahremaninezhad</b>

### 20 Minute Break

<b>DURABILITY   President's A/B   MODERATOR: Pranoy Suraneni</b>	
10:00 – 10:40 am	<b>Keynote:</b> <i>Evaluation of slag and Portland cement concretes exposed to sulfate solutions for 38 years</i> , <b>R. Doug Hooton</b>

### 20 Minute Break

11:00 am – 12:20 pm	<i>Carbonation of Portland Limestone Cement (PLC) concrete systems</i> , <b>Jose Garcia</b> , <b>Nicolas Tiburzi</b> , <b>Kevin Folliard</b> and <b>Thanos Drimalas</b> <i>Characterization and mechanism simulation of Alkali-Silica Reaction in Recycled Glass Mortar Samples</i> , <b>Shuaicheng Guo</b> and <b>Qingli Dai</b> <i>The volume change and damage in cement paste exposed to CaCl<sub>2</sub> solution</i> , <b>Chunyu Qiao</b> , <b>Prannoy Suraneni</b> and <b>Jason Weiss</b> <i>New insights into DEF damage via nonlinear acoustics</i> , <b>Mehdi Rashidi</b> , <b>Alvaro Paul</b> , <b>Jin-Yeon Kim</b> , <b>Laurence Jacobs</b> and <b>Kimberly Kurtis</b>
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<b>NOVEL AND SUSTAINABLE MATERIALS   President's C/D</b>	
<b>MODERATOR: David Corr</b>	
11:00 am – 12:20 pm	<i>Acid resistance of slag-based alkali-activated cements with heavy metals</i> , <b>Juan Pablo Gevaudan</b> , <b>Alejandro Caicedo-Ramirez</b> , <b>Mark Hernandez</b> and <b>Wil V. Srubar</b> <i>Effect of ITZ on elastic modulus of CNF reinforced cement concrete based on numerical simulation</i> , <b>Xingyi Zhu</b> , <b>Yuan Gao</b> , <b>David J. Corr</b> , <b>Maria S. Konsta-Gdoutos</b> and <b>Surendra P. Shah</b> <i>Where does nitrogen go in photocatalytic cement?</i> <b>Qingxu Jin</b> , <b>Emily Saad</b> , <b>Michael Vanderzwaag</b> , <b>Timothy Reeve</b> , <b>Yuanzhi Tang</b> and <b>Kimberly Kurtis</b> <i>Effect of water on the 14Å tobermorite-graphene interface via molecular dynamics simulations</i> , <b>Baig Al Muhit</b> and <b>Florence Sanchez</b>
12:20 – 1:40 pm	<b>Lunch on your own</b>

<b>NOVEL AND SUSTAINABLE MATERIALS   President's A/B</b>	
<b>MODERATOR: Joe Biernacki</b>	
1:40 – 3:00 pm	<i>Fly ash particle characterization and performance prediction within concrete</i> , <b>Tyler Ley</b> , <b>Taehwan Kim</b> , <b>Jeff Davis</b> and <b>Shinhyu Kang</b> <i>A new pozzolanic test for supplementary cementitious materials</i> , <b>Prannoy Suraneni</b> , <b>Vahid Jafari Azad</b> , <b>Burkan Isgor</b> and <b>Jason Weiss</b> <i>The role of w/cm on the early age hydrating kinetics of cement paste</i> , <b>Aida Margarita Ley Hernandez</b> , <b>Dimitri Feys</b> and <b>Aditya Kumar</b> <i>Controlling cement hydration through the molecular structure of comb copolymer superplasticizers</i> , <b>Delphine Marchon</b> , <b>Patrick Juilland</b> , <b>Emmanuel Gallucci</b> , <b>Lukas Frunz</b> and <b>Robert J. Flatt</b>

<b>HYDRATION   President's C/D   MODERATOR: Shiho Kawashima</b>	
1:40 – 3:00 pm	<i>Using cellulose nanocrystals (CNCs) with Portland cements</i> <i>The influence of aluminate phases on hydration</i> , <b>Tengfei Fu</b> , <b>Prannoy Suraneni</b> , <b>Jeffery Youngblood</b> , <b>Francisco Montes</b> , <b>Pablo Zavattieri</b> , <b>Robert Moon</b> and <b>Jason Weiss</b> <i>Pareto analysis of the strength, durability, and sustainability of Portland cements</i> , <b>Chengcheng Tao</b> , <b>Benjamin Watts</b> , <b>Christopher Ferraro</b> and <b>Forrest Masters</b> <i>Effect and mechanism of colloidal silica sol on micro-structure and properties of the cement-based materials as compared to nano-silica powder with agglomerates in micron-scale</i> , <b>Deyu Kong</b> , <b>Linhai Wang</b> , <b>Long Wang</b> , <b>David Corr</b> , <b>Wengui Li</b> and <b>Surendra Shah</b> <i>Clinker weathering and impact on cement performance</i> , <b>Dorota Kazmierczak</b> , <b>Richard Sibbick</b> and <b>Silva Denise</b>

### 20 Minute Break

<b>NOVEL AND SUSTAINABLE MATERIALS   President's A/B</b>	
<b>MODERATOR: Matt D'Ambrosia</b>	

3:20 – 4:40 pm	<i>Mechanisms of sulfate attack in alkali-activated slag</i> , <b>Kai Gong</b> and <b>Claire White</b> <i>Molecular dynamics study on the mechanical and fracture properties of geopolymer binders</i> , <b>Yue Cui</b> , <b>Erman Guleryuz</b> , <b>Waltraud Kriven</b> , <b>Seid Koric</b> and <b>Ange-Therese Akono</b> <i>Geopolymer composites for construction: From micro- to macro-scale</i> , <b>Kaushik Sankar</b> , <b>Peter Stynoski</b> , <b>Waltraud Kriven</b> and <b>Ghassan Al-Chaar</b> <i>A synergistic powers-brownyard, reaction kinetics, and thermodynamic model for phase and pore structure interpretation of blended cements</i> , <b>Deborah Glosser</b> , <b>Vahid Jafari Azad</b> , <b>Prannoy Suraneni</b> , <b>O. Burkan Isgor</b> and <b>W. Jason Weiss</b>
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<b>HYDRATION   President's C/D   MODERATOR: Jeff Bullard</b>	
3:20 – 4:40 pm	<i>Understanding the nanoscale structure, mechanics, hydration, and organic interfaces of calcium sulfate phases using an accurate force field</i> , <b>Ratan Mishra</b> , <b>Robert Flatt</b> and <b>Hendrik Heinz</b> <i>All-atom models of tobermorite 11 Å and 14 Å – benchmarks for realistic modelling of C-S-H</i> , <b>Tariq Jamil</b> , <b>Ratan K. Mishra</b> , <b>Robert J. Flatt</b> and <b>Hendrik Heinz</b> <i>Direct observation of the evolution of microstructure and chemical composition of C3S hydration</i> , <b>Qinang Hu</b> , <b>Tyler Ley</b> , <b>Taehwan Kim</b> , <b>Mohamed Aboustait</b> , <b>Massoud Moradian</b> , <b>Volker Rose</b> and <b>Robert Winarski</b> <i>Quantifying the dissolution rates of tricalcium aluminate in water with in situ digital holographic microscopy</i> , <b>Alexander Brand</b> and <b>Jeffrey Bullard</b>

### 20 Minute Break

<b>Clary Theater</b>	
5:00 – 5:30 pm	<b>Business Meeting</b>
5:30 – 6:30 pm	<b>Della Roy Lecture:</b> <i>Characterization of cementitious materials using x-ray synchrotron radiation: What we know, what we don't know, and what we want to know</i> , <b>Paulo Monteiro</b> ; University of California, Berkeley
<b>Hall of Success</b>	
6:30 – 8:00 pm	<b>Della Roy Reception</b>

## WEDNESDAY, JUNE 28, 2017

<b>RHEOLOGY   President's A/B   MODERATOR: Alex Brand</b>	
8:30 – 9:10 am	<b>Keynote:</b> <i>Machine learning of admixture design</i> , <b>Newell Washburn</b> , <b>Aditya Menon</b> , <b>Chetali Gupta</b> , <b>Kun Zhang</b> and <b>Barnabas Poczos</b>
<b>20 Minute Break</b>	
9:30 – 10:50 am	<i>Characterization of polycarboxylate ethers superplasticizers: insight on polydispersity</i> , <b>Giulia Gelardi</b> , <b>Nicolas Sanson</b> , <b>Gergely Nagy</b> and <b>Robert J Flatt</b> <i>The kinetics of cement structural build-up modified with clays and viscosity modifying agents</i> , <b>Siwei Ma</b> and <b>Shiho Kawashima</b> <i>Modeling and rheology of cement paste for 3-D printing applications</i> , <b>Abdul Salam Mohammad</b> , <b>Babajide Onanuga</b> and <b>Joseph Biernacki</b> <i>Digital fabrication with concrete: Current activities at ETH Zurich</i> , <b>Timothy Wangler</b> , <b>Ena Lloret-Fritschi</b> , <b>Lex Reiter</b> , <b>Fabio Gramazio</b> , <b>Matthias Kohler</b> , <b>Norman Hack</b> , <b>Mathias Bernhard</b> , <b>Andrei Jipa</b> , <b>Benjamin Dillenburger</b> and <b>Robert Flatt</b>

<b>SENSING   President's C/D   MODERATOR: Sonia Li</b>	
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9:30 – 10:50 am	<i>Real-time monitoring of the dehydration behavior of an industrial developed CAC-based system by in-situ combination of <math>\mu</math>-XRD2 &amp; DTA</i> , <b>Nadja Wichtner</b> , <b>Stefan Käßner</b> , <b>Christoph Berthold</b> and <b>Klaus G. Nickel</b> <i>Analysis of blended cements using an iterative rietveld-PONKCS technique</i> , <b>Yuriy Stetsko</b> , <b>Natalia Shanahan</b> , <b>Harvey Deford</b> and <b>Abla Zayed</b> <i>Passive wireless sensors for monitoring behavior of recycled aggregate concrete</i> , <b>Ruofei Zou</b> and <b>David Lange</b>
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### 10 Minute Break

<b>RHEOLOGY   President's A/B   MODERATOR: Newell Washburn</b>	
11:00 am – 12:20 pm	<i>Control flow concrete</i> , <b>Danila Ferraz</b> , <b>Elizabeth Burns</b> and <b>Klaus-Alexander Rieder</b> <i>Assessing the influence of shotcrete application on the mechanical performance of macrosynthetic fiber-reinforced concrete</i> , <b>Nicholas Claggett</b> and <b>Christopher Shearer</b> <i>Particle size distribution of the lubrication layer of highly workable concrete</i> , <b>Daniel Galvez-Moreno</b> and <b>Dimitri Feys</b> <i>Self-compacting concrete and hydrophobic modified cellulose fibers</i> , <b>Kristen Sherman</b>

<b>SENSING   President's C/D   MODERATOR: Qinang Hu</b>	
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11:00 am – 12:20 pm	<i>Salicylic acid-methanol extraction of aluminosilicate gel, dipobrato sarbapalli</i> , <b>Xu Chen</b> , <b>Leslie Struble</b> and <b>Paramita Mondal</b> <i>Damage in concrete in terms of microscopic density changes</i> , <b>Pavitra Murru</b> , <b>Zachary Grasley</b> , <b>K.R. Rajagopal</b> , <b>P. Alagappan</b> <i>The molecular origins of time-dependent deformation phenomena in calcium-silicate-hydrates</i> , <b>Ali Morshedifard</b> and <b>Mohammad Javad Abdolhosseini Qomi</b> <i>High-temperature self-healing geothermal well cement composites</i> , <b>Tatiana Pyatina</b> and <b>Toshifumi Sugama</b> <i>Water dynamics of cement paste prepared with nano-silica and Portland cement using quasi elastic neutron scattering</i> , <b>Kunal Kupwade-Patil</b> , <b>Ali Bumajdad</b> , <b>Abdullah Jamsheer</b> and <b>Oral Buyukozturk</b>
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