



**ICMA** *International Cement Microscopy Association*

**FINAL PROGRAM OF THE THIRTY EIGHTH  
INTERNATIONAL CONFERENCE ON CEMENT MICROSCOPY**  
SPONSORED & ORGANIZED BY INTERNATIONAL CEMENT MICROSCOPY ASSOCIATION (ICMA)  
CO-SPONSORED BY : ECOLE DES MINES DE DOUAI, FRANCE  
NOVOTEL LYON GERLAND HOTEL  
70 AVENUE LECLERC, LYON, CEDEX 07, FRANCE, 69363  
April 17 – 21, 2016

**SUNDAY, APRIL 17, 2016**

6:00 – 8:00 P.M.                      **Registration** – Novotel Lyon Gerland Hotel, Lyon, France  
**Welcome Reception**  
Hosted by ICMA

**MONDAY, APRIL 18, 2016**

8:00 – 9:00 A.M.                      **Registration** – Novotel Lyon Gerland Hotel, Lyon, France

9:00 – 9:10 A.M.                      **Welcome Address**  
Vincent Thiery Co-Chairman  
ICMA European Organizing Committee

9:10 – 9:20 A.M.                      **Opening Address**  
Arturo G. Nisperos  
ICMA General Chairman

9:20 – 9:50 A.M.                      **Keynote Address**  
Dr. Laurent Izoret  
Director In-Charge of Products & Qualification  
ATILH, Paris, France

9:50 – 10:00 A.M.                      **Program Introduction**  
Herbert Poellmann  
Program Committee Chairman

10:00 – 10:25 A.M.                      **SOME HISTORICAL POINTS ABOUT CEMENT AND  
MICROSCOPY IN FRANCE**



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Vincent Thiery  
School of Mines  
Dept. of Civil & Environmental Engineering  
Douai, Cedex, France

Samuel Meulenyzer  
Lafarge-Holcim Research Center  
Saint-Quentin-Fallavier, France

Myriam Bouichou  
National Research Center of Historical Monuments  
Champs-sur-Marne, France

10:25 – 10:40 A.M.

## **BREAK**

10:40 – 11:05 A.M.

## **MULTI-SCALE ASSESSMENT OF THE 3D PORE NETWORK OF A HIGH PERFORMANCE CONCRETE**

Yang Song & C. Davy  
Ecole Centrale de Lille  
Cedex, France

V. Thiery & D. Damidot  
Ecole des Mines de Douai  
Douai, France

D. Troadec  
IEMN, UMR, CNRS, Villeneuve d'Ascq, France

X. Bourbon  
Andra, Chatenay-Malabry, Cedex, France

11:05 – 11:30 A.M.

## **EFFECT OF DIFFERENT GRAIN SIZE DISTRIBUTION OF RAW MEAL ON THE BURNABILITY AND THE POLYMORPHISM OF CLINKER PHASES**

Marcus Paul  
Wilhelm Dyckerhoff Institut für Baustofftechnologie  
Wiesbaden, Germany

Fulvio Canonico  
Buzzi Unicem  
Trino, Italy



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- 11:30 – 12:00 Noon.     **INTRODUCTION OF EXHIBITORS**  
Exhibitors Committee Chair & Co-Chair
- 12:00 – 1:00 P.M.        **LUNCH BREAK**
- 1:00 – 1:25 P.M.        **PARTIAL LEAST SQUARES REGRESSION METHOD FOR  
QUANTITATIVE ANALYSIS OF BLENDED CEMENTS**  
  
Thomas Fuellmann & Thomas Witzke  
Panalytical  
Almelo, The Netherlands
- 1:25 – 1:50 P.M.        **CONCRETE METASTABLE AFM PHASES: A BARRIER FOR  
SELENIUM AND MOLYBDENUM TRANSPORT**  
  
B. Ma, A. Fernandez-Martinez, and L. Charlet  
University of Grenoble  
Grenoble, France  
  
S. Grangeon  
BRGM,  
Orleans, Cedex, France
- 1:50 – 2:15 P.M.        **NEW CONCRETE WATER PERMEABILITY REDUCING ADMIXTURE  
(PRAH)**  
  
Giorgio Ferrari, Vincenzo Russo, Danilo Passalacqua, Davide Salvioni  
Mapei S.p.A.  
Milano, Italy  
  
Gilberto Artioli, Maria Chiara Dalconi, Luca Valentini, Marco Favero.  
University of Padua, Geoscience Department  
Padova, Italy
- 2:15 – 2:40 P.M.        **EXAMINING LARGE SETS OF XRD MEASUREMENTS WITH  
EXPLORATORY FACTOR ANALYSIS**



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Torsten Westphal, Thomas A. Bier, E. Qoku  
IKGB, TU Bergakademie Freiberg  
Freiberg, Germany

A. Qorllari  
Tirana, Albania

2:40 – 3:05 P.M.

## **COMBINED CHARACTERIZATION OF MSWI BOTTOM ASH**

Katrin Schollbach, Qadeer Alam, Veronica Caprai, Miruna Florea,  
and Jos Brouwers  
Eindhoven University of Technology  
Dept. of the Built Environment, Unit Bldg. Physics & Services  
Eindhoven, The Netherlands

Sieger van der Laan & Corrie van Hoek  
Tata Steel Netherlands  
Product and Process Materials Characterization  
Ijmuiden, Netherlands

3:05 – 3:30 P.M.

## **PETROGRAPHY, LONG-TERM DURABILITY AND MIX PROPORTIONS OF CONCRETES IN ARTIFICIAL ISLAND DAINI KAIHO (SEA FORT NO. 2) AT TOKYO BAY, CONSTRUCTED IN EARLY 20<sup>TH</sup> CENTURY**

T. Katayama, Y. Ando, T. Sato, S. Hirono, D. Sawaki, and K. Mukai  
Taiheiyo Consultant Co., Ltd.  
Sakura, Japan

3:30 – 3:45 P.M.

## **BREAK**

3:45 – 7:00 P.M.

## **PANEL DISCUSSION: MICROSCOPY AND ITS ROLE IN CEMENT SUSTAINABILITY**

Conducted By: Dr. Karen Luke, Workshop Coordinator, Chairman

### **Panelists:**

- Dr. Maurizio Marchi – C.T.G. S.p.A., Italcementi Group, R&D Dept., Cement & Binder Team, Bergamo, Italy: ***“New Binders: A Real Alternative to OPC?”***
- Dr. Alexander Pisch – Lafarge-Holcim, France: ***“High Temperature Thermodynamics as a Tool to Predict Clinker Mineralogy.”***



- Dr. Michel Gimenez of Lafarge-Holcim, LCR, France and Dr. Gunther Walentam of Lafarge, Holderbank, Switzerland: “**Harnessing CO<sub>2</sub>**”
- Prof. Jorgen Skibsted – Instrument Centre for Solid-State NMR Spectroscopy, Interdisciplinary Nanoscience Center (NANO) & Dept. of Chemistry, Aarhus University, Denmark: “**Application of Solid-State NMR in the Development of Sustainable Portland Cement Blends.**”

**TUESDAY, APRIL 19, 2014**

8:00 – 8:05 A.M.      **Registration & Welcome**

8:05 – 8:30 A.M.      **CORRELATION BETWEEN LIMESTONES PETROGRAPHY AND OPC CLINKER MANUFACTURING PROCESS**

M. Galimberti, N. Marinoni, G. Della Porta  
Earth Sciences Department  
University of Milan,  
Milan, Italy

M. Marchi  
CTG – Italcementi Group  
Bergamo, Italy

8:30 – 8:55 A.M.      **EFFECT OF ACCELERATED CARBONATION ON CALCIUM SULFO-ALUMINATE CEMENTS: A MINERALOGICAL/MICROSTRUCTURAL INVESTIGATION**

D. Gastaldi, F. Canonico, L. Buzzi, S. Irico, F. Bertola  
Unicem S.p.A  
Monferrato, Italy

S. Mutke  
Wilhelm Dyckerhoff Institut für Baustofftechnologie  
Wiesbaden, Germany

8:55 – 9:20 A.M.      **HOW DO ADDITIVES INFLUENCE THE MORPHOLOGY OF THE HYDRATION PRODUCT OF CALCIUM SULFATE HEMIHYDRATE?**



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C.Pritzel, Y. Sakalli, and R. Trettin  
Institute for Building & Materials Chemistry  
University of Siegen  
Siegen, Germany

9:20 – 9:45 A.M. **CHARACTERIZATION BY EPMA MAPPING OF CEMENTITIOUS COATINGS USED IN SEWER PIPES**

Cedric Patapy, Matthieu Lavigne, Orlane Robin, Etienne Paul, Alexandra Betron, Sophe Gouy, and Philippe De Parseval  
University of Toulouse  
Toulouse, France

9:45 – 10:10 A.M. **BEHAVIOR, PROPERTIES AND SUSTAINABILITY OF CONCRETE CONTAINING PORTLAND LESTONE CEMENT**

Moetaz El-Hawary  
Kuwait University  
Kuwait City, Kuwait

10:10 – 10:25 A.M. **BREAK**

10:25 – 10:50 A.M. **A COMBINED SYNCHOTRON RADIATION MICRO COMPUTED TOMOGRAPHY AND MICRO X-RAY DIFFRACTION STUDY ON DELETERIOUS ALKALI-SILICA REACTION**

N. Marinoni  
University of Milan  
Milan, Italy

10:50 – 11:15 A.M. **MICROSTRUCTURAL ANALYSIS OF SUPPLEMENTARY CEMENTITIOUS MATERIAL CONTAINING MORTARS**

Funda Inceoglu, Bahar Ayten, Ismail Caglar, Gulden Tombas  
Ar-Ge Yoneticisi – Uygulamali Arastirma  
R&D Group – Applied Research  
Istanbul, Turkey

Kalekim Kimyevi, Maddeler Sanayi ve Ticaret A.S.  
Kalekim Chemicals Co. Inc.  
Istanbul, Turkey



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- 11:15 – 11:40 A.M.    **GROUND QUARTZ FROM LOCAL KUWAITI SAND USED AS NANO-SILICA FILLER IN CEMENT PASTE MIXTURES**
- Saud Al-Otaibi and M. Sherif El-Eskandarany  
Energy & Building Research Center  
Kuwait Institute for Scientific Research  
Kuwait
- 11:40 -12:10 P.M.    **HISTORIC MORTARS FROM A NATIONAL HISTORIC LANDMARK IN THE NATION'S CAPITAL**
- Dipayan Jana  
Construction Materials Consultants, Inc.  
Greensburg, Pennsylvania, U.S.A.
- 12:10 – 1:00 P.M.    **LUNCH BREAK**
- 1:00 – 1:25 P.M.    **RESTORATION AND STRENGTHENING OF HISTORICAL HERITAGE WITH COMPOSITE MATERIALS: THE CHIMNEY OF CRESPIU d'ADDA VILLAGE**
- D. Carbotti & G. Morandini  
Mapei S.p.A.  
Milan, Italy
- 1:25 -1:50 P.M.    **DEVELOPMENT OF A NEW CEMENTITIOUS FILLER FOR USE IN FAST CURING CURING COLD BINDER COURSE IN PAVEMENT APPLICATION**
- Hassan Al-Nageim & Anmar Dulaimi  
Department of Civil Engineering  
Liverpool John Moores University  
Liverpool, United Kingdom
- 1:50 – 2:15 P.M.    **RECYCLING OF WASTE MATERIALS AS LIGHTWEIGHT AGGREGATE BY COLD BONDING PELLETIZING TECHNIQUE**
- P. Tang, M.V.A. Florea, and H.J.H. Brouwers  
Eindhoven University of Technology  
Department of the Built Environment, Unit Bldg. Physics & Sciences  
Eindhoven, The Netherlands



**2:15 – 2:40 P.M.      HYDRATION AND PERFORMANCE OF HIGH BELITE CEMENT CLINKER PRODUCED WITH COPPER SLAG**

Gao Xianshu, Wang Jing, Wang Min, & Wen Zhaijun  
China Building Materials Academy  
The State Key Laboratory of Green Building Materials  
Beijing, China

**2:40 – 3:05 P.M.      MICROANALYSIS OF ALKALI-ACTIVATED BINARY BLENDED CEMENTITIOUS FILLER SYSTEM IN A NOVEL COLD BINDER COURSE MIXTURE**

Anmar Dulaimi (PhD Student)  
Department of Civil Engineering  
Liverpool John Moores University, U.K.  
Kerbala University, Kerbala, Iraq

Hassan Al-Nageim & Felicite Ruddock  
Liverpool Centre for Materials Technology  
School of Built Environment  
Liverpool John Moores University  
Liverpool, United Kingdom

**3:05 – 3:30 P.M.      USE OF RE-CON ZERO FOR CONCRETE CONTAINING ADMIXTURES**

J. Haufe, J. Stindt, A. Vollpracht  
Institute of Building Materials Research  
RWTH Aachen University  
Aachen, Germany

G. Ferrari  
Mapei S.p.A.  
Milano, Italy

**3:30 – 3:45 P.M.      BREAK**

**3:45 – 4:10 P.M.      AFM-PHASES – THEIR USE IN BUILDING MATERIALS AND IMMOBILIZATION**

H. Poellmann, R. Kaden, and S. Stober  
University of Halle/Saale  
Department of Mineralogy & Geochemistry  
Halle, Germany





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4:10 – 4:35P.M.

## **DEVELOPMENT OF NEW CEMENTITIOUS FILLER FOR USE IN MICROASPHALT FOR PAVEMENT MAINTENANCE**

Hassan Al-Nageim & Atif Rasheed (PhD Student)  
Dept. of Civil Engineering  
Liverpool John Moores University  
Liverpool, United Kingdom

4:35 – 5:00 P.M.

## **SCANNING ELECTRON MICROSCOPY OF AUTOCLAVED AERATED CONCRETE WITH SUPPLEMENTARY RAW MATERIALS**

Chris Straub  
Materials Innovation Institute  
Delft, The Netherlands

Miruna Florea & Jos Brouwers  
Eindhoven University of Technology  
Dept. of the Built Environment, Unit Building Physics & Services  
Eindhoven, The Netherlands

## **WEDNESDAY, APRIL 20, 2016**

8:00 – 8:05 A.M.

### **Registration & Welcome**

8:05 – 12:30 P.M..

## **PANEL DISCUSSION: MICROSCOPY AND ITS ROLE IN CONCRETE SUSTAINABILITY**

**Conducted by: Dr. Karen Luke, Workshop Coordinator/Chairman**

### **PANELISTS:**

- Prof. Harald Justness, SINTEF Building & Infrastructure Research Institute, Trondheim, Norway: ***“Microstructure-Macro Property Relations in Sustainable Cement Blends (Utilization of SEM)”***
- Prof. Kimberly Kurtis, School of Civil & Environmental Engineering & Associate Dean for Faculty Development & Scholarship, College of Engineering, Georgia Institute of Technology, Georgia, U.S.A: ***“Strategies For Evaluation of Non-Portland (or Alternative) Cement.”***



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- Prof. Gregory Dipple, Dept. of Earth, Ocean & Atmospheric Sciences, University of British Columbia, Vancouver, BC, Canada: ***“Imaging of In-situ Nano-Calcium Carbonate Development in Ready-Mixed Concrete and Implications for Mechanisms of Strength Enhancement.”***
- Prof. Dr. Ing Thomas Bier, Technische Universität Bergakademie, Freiberg, Germany: ***“Characterization of Pore Structure of Various Hardened Cementitious Materials using Indirect Methods.”***

12:30 – 1:30 P.M.     **LUNCH BREAK**

1:30 – 1:55 P.M.     **PHASE DISTRIBUTION ANALYSIS OF CEMENT CLINKERS PRODUCED USING ALTERNATIVE FUELS**

Sorour Semsari Parapari, Pozhhan Mokhtari, Mehmet Ali Gulgun and  
Melih Papila  
Sabanci University, Faculty of Engineering & Natural Sciences  
Istanbul, Turkey

1:55 – 2:20 P.M.     **RHEOLOGICAL INVESTIGATION ON CASTING RESUMPTION OF SELF-LEVELLING MORTARS**

E. Carlini, S. Carra, F. Curto, A. Lo Presti  
Mapei, S.p.A.  
Milan, Italy

2:20 – 2:45 P.M.     **INVESTIGATION OF C<sub>3</sub>A HYDRATION BY ENVIRONMENTAL SCANNING ELECTRON MICROSCOPE**

Y. Sakalli, C. Pritzel, R. Trettin  
Institute for Building and Materials Chemistry  
University of Siegen  
Siegen, Germany

2:45 – 3:10 P.M.     **PORTLANDITE SAND: FACT OR FICTION?**

Chris Rogers and Karl Peterson  
University of Toronto  
Department of Civil Engineering  
Toronto, Ontario, Canada



3:10 – 3:25 P.M.     **BREAK**

3:25 – 3:50 P.M.     **MODIFICATION OF THE MICROSTRUCTURE OF C<sub>3</sub>S PASTES USING AFWILLITE BASED SEEDS**

Matthieu Horgnies, Lingjie Fei, Raquel Arroyo  
Lafarge-Holcim R & D  
St. Quentin-Fallavier, France

3:50 – 4:15 P.M.     **CONTRIBUTION OF RAMAN SPECTROSCOPY TO THE STUDY OF CLINKERS HETEROGENEITY**

A. Gauthier  
Universite de Lille  
Villeneuve d'Ascq, France

F. Amin  
Technodes SAS Italcementi Group  
Guerville Cedex, France

P. Le Coustumer  
Universite de Bordeaux  
Pessac, France

4:15 – 4:25 P.M.     **CLINKER EXCHANGE PROGRAM**

Hugh Hou, Clinker Sample Exchange Program Committee Chairman

4:25 – 4:35 P.M.     **ANNOUNCEMENT OF 2017 ICMA CONFERENCE**

Tom Dealy, Site Selection & Coordination Committee Chairman

4:35 - 4:45 P.M.     **CLOSING REMARKS**

Arturo G. Nisperos  
ICMA General Chairman

4:45 P.M.             **ADJOURNMENT (End of Technical Session)**

6:00 – 8:00 P.M.     **ICMA HOSTED RECEPTION**



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**THURSDAY, APRIL 21, 2016**

**9:00 – 5:00 A.M.      TOUR AND VISIT OF LAFARGE-HOLCIM RESEARCH CENTER,  
L'ISLE d' ABEAU, NEAR LYON, FRANCE**

## **PROGRAMME**

**9:00 AM – 12:30 P.M.                      TECHNICAL PRESENTATIONS**

- LafargeHolcim R&D Presentation.
- Ellis Gartner: Overview of Research in Cement and Concrete Over the Last Two Decades.
- Solidia\* Clinker and Cement Behaviours Analyzed by SEM.

### **BREAK**

- SEM Point Analyses as Input for the Development of Thermodynamic Databases.
- Modification of the Microstructure of C<sub>3</sub>S Pastes Using AFWillite-Based Seeds.
- Hydration of C<sub>3</sub>S and CEM 1 52.5N/Limestone Filler Blend Pastes at Low Relative Humidity.
- SEM Advanced and Recent Analysis Tools Applied to Cement and Concrete Microstructure: Review of Spectro-Spatial Strategies and Cases of Application.

**12:45 – 2:15 P.M.      BUFFET LUNCH (SHOWROOM)**

**2:15 – 4:00 P.M..      Visit of LafargeHolcim Laboratories**

**5:00 P.M.                      Bus Ride to Novotel Lyon Gerland Hotel  
Or Departure to Airport from LafargeHolcim Research Center  
(Note: Possible 20 minutes ride by taxi).**

### **GUEST/SPOUSE PROGRAM**

Guest/Spouse Program will be organized on demand for the 38<sup>th</sup> ICMA Conference in LYON, FRANCE and details will be shared as registration progresses and will be announced in the ICMA webpage ([www.cemmicro.org](http://www.cemmicro.org)). Please identify in your registration if a spouse or guests will accompany you at the conference. (Spouse & Guest Committee: Lourdes M. Nisperos- Chairman; Maria Poellmann Co-Chair)



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## **AU REVOIR**

**SEE YOU ALL AT THE  
2017 ICMA CONFERENCE  
VISIT THE ICMA WEBSITE  
FOR MORE INFORMATION  
ABOUT THE 39<sup>TH</sup> ICMA CONFERENCE  
([WWW.CEMMICRO.ORG](http://WWW.CEMMICRO.ORG))**