

# WORKSHOP: HOW TO EXPLOIT THE POROSITY OF GEOPOLYMERS?

2<sup>nd</sup> October 2014

CENTURIA meeting room,  
via Granarolo 62, Faenza, Italy

## Daily Program

08.30-09.00: Registration

09.00-09.30: Opening remarks

**Dr. Massimo Isola**, Deputy Mayor and Councillor for Culture of the town of Faenza

**Dr. Alida Bellosi**, Director of CNR-ISTEC

**Prof. Angelo Vaccari**, Director of the Dept. of Industrial Chemistry "Toso Montanari"-  
University of Bologna

**Prof. Paolo Zannini**, President of the Italian Ceramic Society

**Prof. Cristina Leonelli**, Coordinator of the Italian Working Group on Geopolymers

### Morning session I

Chair: **Dr. Valentina Medri**, CNR-ISTEC

09.30-10.00: **Dr. Enrico Bernardo**, University of Padova

Cellular structures: expanding the properties of ceramics

10.00-10.30: **Dr. Stephan Sigrist**, Micromeritics

Understanding the porosity of solid materials by physisorption and mercury intrusion porosimetry

10.30-11.00: **Dr. Sylvain Deville**, CNRS/Saint-Gobain, France

Ice templating: a versatile route for macroporous materials

11.00-11.20: Coffee break

### Morning session II

Chair: **Prof. Cristina Leonelli**, University of Modena and Reggio Emilia

11.20-11.50: **Dr. Arnaud Poulesquen**, CEA, France

The geopolymerization from liquid state to porous material

11.50-12.20: **Dr. Valentina Medri**, CNR-ISTEC

Tailoring the porosity in geopolymer based materials and composites

12.20-12.50: Poster flash presentation

12.50-14.50: Buffet lunch & poster session

### Afternoon session

Chair: **Prof. Angelo Vaccari**, University of Bologna

14.50-15.20: **Prof. Alberto Muscio**, University of Modena and Reggio Emilia

The thermal and acoustic insulation in buildings: state of the art, perspectives, and opportunities for innovative materials

15.20-15.50: **Eng. Luca Laghi**, CertiMaC, Italy

Development and characterization of light-weight materials for building envelope: the influence of density in thermal conductivity measurements

15.50-16.30: Round table & Best poster award

16.30- : visit to CNR-ISTEC laboratories

## KEYNOTE LECTURES

Keynote ID: 1

**E. Bernardo**

Dept. of Industrial Engineering, University of Padova (Italy)

*Cellular structures: expanding the properties of ceramics*

Keynote ID: 2

**S. Sigrist**, J. Kenvin, J. Jagiello

Micromeritics

*Understanding the porosity of solid materials by physisorption and mercury intrusion porosimetry*

Keynote ID: 3

**S. Deville**

Laboratory of Synthesis and Functionalization of Ceramics, CNRS/Saint-Gobain, Cavaillon (France)

*Ice templating: a versatile route for macroporous materials*

Keynote ID: 4

**A. Poulesquen**, P. Steins, J. Rouyer, V. Benavent, T. Pierrat, A. Gerenton, D. Lambertin, O. Diat, F. Frizon

CEA Marcoule, DEN/DTCD/SPDE/LP2C/BP17171, Bagnols sur Cèze (France); ICSM, BP17171, 30207 Bagnols sur Cèze (France)

*The geopolymerization from liquid state to porous materials*

Keynote ID: 5

**V. Medri**, E. Landi, E. Papa, A. Natali Murri, P. Benito, A. Vaccari

CNR-ISTEC, Institute of Science and Technology for Ceramics; Dip. di Chimica Industriale "Toso Montanari", Università di Bologna (Italy), CertiMaC s.c.r.a.l., Faenza (Italy)

*Tailoring the porosity in geopolymer based materials and composites*

Keynote ID: 6

**A. Muscio**,

EELab – Energy Efficiency Laboratory, University of Modena and Reggio Emilia (Italy)

*The thermal and acoustic insulation in buildings: state of the art, perspectives, and opportunities for innovative materials*

Keynote ID: 7

**L. Laghi**

CertiMaC s.c.r.a.l., Faenza (Italy)

*Development and characterization of light-weight materials for building envelope: the influence of density in thermal conductivity measurements*

## POSTERS - Contributes

Poster ID: 00

C. Leonelli

DIEF-Department of Engineering "Enzo Ferrari", Modena & Reggio Emilia University (Italy)

*Italian Working Group on geopolymers*

Poster ID: 01

O. Russo

Micromeritics S.r.l., Peschiera Borromeo, Milano (Italy)

*Gas Adsorption Theory*

Poster ID: 02

O. Russo

Micromeritics S.r.l., Peschiera Borromeo, Milano (Italy)

*Mercury Intrusion Porosimetry Theory*

Poster ID: 03

P. Benito, A. Vaccari, S. Bugani, J. Jaroszewicz, W. Swieszkowski

Dip. di Chimica Industriale "Toso Montanari", Università di Bologna (Italy); Faculty of Materials Science and Engineering, Warsaw University of Technology (Poland)

*Study of porosity in geopolymers*

Poster ID: 04

E. Papa, V. Medri, P. Benito, A. Vaccari, E. Landi

CNR-ISTEC, Institute of Science and Technology for Ceramics, Faenza (Italy); Dip. di Chimica Industriale "Toso Montanari", Università di Bologna (Italy)

*Hierarchical geopolymers by ice-templating*

Poster ID: 05

E. Kamseu, C. Leonelli

DIEF-Department of Engineering "Enzo Ferrari", Modena & Reggio Emilia University (Italy)

*Cumulative pore volume, pore size distribution, phases percolation and effective thermal conductivity in porous geopolymers*

Poster ID: 06

M. Romagnoli, E. Kamseu, C. Leonelli

DIEF-Department of Engineering "Enzo Ferrari", Modena & Reggio Emilia University (Italy)

*Rheology and porosity in geopolymers*

Poster ID: 07

M. C. Bignozzi, O. Fusco, L. Guardigli, R. Gulli

Dipartimento di Ingegneria Civile, Chimica, Ambientale e dei Materiali, University of Bologna (Italy); CIRI (Centro Interdipartimentale di Ricerca Industriale) Edilizia e Costruzioni, University of Bologna, (Italy); Dipartimento di Architettura, University of Bologna (Italy)

*Porosity-physical properties correlation in ceramic waste based geopolymers*

Poster ID: 08

G. Masi, W.D.A. Rickard, M.C. Bignozzi, A. van Riessen

Dept. of Civil, Chemical, Environmental and Materials Engineering, Bologna University (Italy); Geopolymer Research Group, Curtin University (Australia)

*Achieving tailored porosity in geopolymer composites*

Poster ID: 09

P. Colombo, G. Franchin, M. Strozi Cilla

Department of Industrial Engineering, Padova University (Italy); Federal University of São Carlos (Brazil)

*Novel routes for open cell geopolymer components*

Poster ID: 10

M. Catauro, F. Bollino, F. Papale, G. Lamanna

Dept. of Industrial and Information Engineering (DIIE), Second University of Naples (Italy)

*Synthesis and Characterization of geopolymer/ PEG hybrid materials with different porosity*

Poster ID: 11

K. Krnel, Z. Stadler, T. Kosmač

Engineering Ceramics Department, Jožef Stefan Institute, Ljubljana (Slovenia)

*Fibre reinforced fly-ash based geopolymer composites*

Poster ID: 12

K. Korniejenko, J. Mikula, M. Lach

Cracow University of Technology, Faculty of Mechanical Engineering, Institute of Materials Engineering

*The use of geopolymers as construction materials*

Poster ID: 13

E. Prud'Homme, E. Joussein, S. Rossignol

LGCIE / INSA, Lyon, (France); GRESE, Limoges University (France); SPCTS, Limoges University (France)

*New silica foam for thermal insulation: use of industrial sludges*

Poster ID: 14

J. Francisconi, L. Laghi, M. Morganti

CertiMaC s.c.a.r.l., Faenza (Italy)

*Development of innovative and eco-friendly expanded perlite-and recycled materials-based masonry blocks*

Poster ID: 15

S. Gualtieri, I. Vodopivec, E. Soragni, M. Macchiarola, B. Fabbri

CNR-ISTEC, Institute of Science and Technology for Ceramics; CertiMaC s.c.a.r.l., Faenza (Italy)

*Lightweight geopolymer based panels for replacing mosaics*

Poster ID: 16

E. Soragni, S. Gualtieri, M. Macchiarola, B. Fabbri

CNR-ISTEC, Institute of Science and Technology for Ceramics, Faenza (Italy)

*Novel porous materials for conservation works*

Poster ID: 17

M. Bressan, M. Favaro, A. Magro, L. Nodari, S. Mazzochin, S. Tamburini

Institute for Energetics and Interphases CNR-IENI, Padova (Italy); Soprintendenza per i Beni Archeologici del Veneto, Padova (Italy); Dept. of Cultural Heritage, Padova University (Italy)

*Geopolymers in the restoration of pottery, ceramics and bricks*

Poster ID: 18

M. Favaro, E. Garbin, A. Magro, F. Nardon, M. Panizza, S. Tamburini, M.R. Valluzzi

Institute for Energetics and Interphases CNR-IENI, Padova (Italy); Dept. of Civil, Architectural and Environmental Engineering, Padova University (Italy)

*Geopolymers as strengthening materials for historical brick masonry*

Poster ID: 19

A. Natali Murri, E. Papa, V. Medri, E. Landi

CNR-ISTEC, Institute of Science and Technology for Ceramics, Faenza (Italy); CertiMaC s.c.a.r.l., Faenza (Italy)

*Design of porous wool-geopolymer composite pots*

Poster ID: 20

E. Musca

ISIA - Istituto Superiore per le Industrie Artistiche, Faenza (Italy)

*Preserving temperature as a cooking technique by using geopolymers*

Poster ID: 21

V. Latini, A. Urbani, V. Medri, E. Landi, E. Papa, A. Natali Murri

SAB Aerospace srl, Ancona (Italy); CNR-ISTEC, Institute of Science and Technology for Ceramics, Faenza (Italy)

*Realization and testing of a Loop Heat Pipe Evaporator with geopolymer based wick structures*

## SCIENTIFIC COMMITTEE

Elena Landi, Valentina Medri (Chair)  
CNR-ISTEC, Italy

Patricia Benito, Angelo Vaccari  
University of Bologna, Italy

Cristina Leonelli, Marcello Romagnoli  
University of Modena and Reggio Emilia, Italy

Alberto Muscio  
President AIPT, University of Modena and Reggio Emilia, Italy

Luca Laghi  
CertiMaC – MITAI Project - Technopole of Ravenna (Faenza headquarters), Italy

## SECRETARIAT

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