

# V Workshop on New Boundaries of Structural Concrete

*September 19 – 20, 2019*

*Milan, Italy*

## Organized by

ACI Italy Chapter



Department of Civil and  
Environmental Engineering  
*Politecnico di Milano*



**POLITECNICO**  
MILANO 1863

DIPARTIMENTO DI  
INGEGNERIA CIVILE E AMBIENTALE

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# Program

September 19, Thursday

- 8.15-9.00**      **Registration**
- 9.00-9.15**      **Welcome from the President of ACI Italy Chapter,  
Professor Luigi Coppola**
- 9.15-9.30**      **Welcome from the Head of the Department of Civil and  
Environmental Engineering (DICA), Prof. Alberto  
Guadagnini, and from the Organizing Committee**
- 09:30-10:15**      **Opening session**  
*Chairman: Prof. Liberato Ferrara, Politecnico di Milano*  
**Keynote Lecture “Digital Concrete and the Future of  
Construction”**  
**Prof. Timothy Wangler, ETH, Zurich, Switzerland**
- 10:15-11:15**      **Session A1 “Innovative Cementitious Materials I”**  
*Chairwoman: Prof. Maddalena Carsana, Politecnico di Milano*
- In situ* evaluation of the photocatalytic activity of cement**  
*P. Frontera, L. Bonaccorsi, A. Malara, A. Donato, F. Giglio, F. Pastura, P.L. Antonucci*
- Carbonation of sustainable Portland-free CSA-based mortars manufactured with  
lithium carbonate and sodium carbonate**  
*L. Coppola, D. Coffetti, E. Crotti, R. Dell’Aversano, G. Gazzaniga*
- Lightweight Alkali-Activated Slag Plaster to Improve the Seismic Performance  
and the Energy Efficiency of Poor-Quality Masonry Walls**  
*L. Coppola, D. Coffetti, E. Crotti, A. Marini, C. Passoni*
- Characterization of the Tensile Behaviour of Ultra-High Performance Fibre-  
Reinforced Concrete**  
*F. Lo Monte, L. Ferrara*
- 11:15-11:45**      **Coffee break**

**11:45-13:00      Session A2 “Innovative Cementitious Materials II”**

*Chairman: Prof. Luigi Coppola, University of Bergamo*

**Behavior of Cement-Based Alkali-Activated Lightweight Mortars at High Temperatures**

*C. Giosuè, A. Mobili, F. Tittarelli*

**Nano-Additions as a means to Improve UHPFRC Performance in Geothermal Power Plants**

*E. Cuenca, A. Mezzana, L. Ferrara*

**Twelve Years of Natural Carbonation in Concretes made with Supplementary Cementing Materials**

*F. Lollini, E. Redaelli*

**Experimental study on SFRC beams and slabs strengthened with FRCM composite materials**

*M.C. Rampini, G. Zani, M. Colombo and M. di Prisco*

**Bending and Compression Tests on Cementitious Mortars Containing Recycled Rubber-Waste as a Substitute for Traditional Aggregate**

*A.P. Fantilli, R. M. Bongiovanni, L. Gaiero*

**13:00-14:00      Lunch**

**14:00-15:30      Session B1 “Concrete with Recycled and Non-Traditional Materials”**

*Chairman: Prof. Giovanni Di Luzio, Politecnico di Milano*

**Post-Peak Behaviour of Ferrocement in Bending: Testing and Modelling**

*F. Aymerich, L. Fenu, L. Francesconi, G. Loi*

**Compressive and Tensile Performance of Concrete Reinforced with Waste-Metal Chips**

*Z. Zamanzadeh, F. Jireh*

**Construction and Demolition Wastes as Aggregates for Structural Concrete: the European project RE<sup>4</sup>**

*A. Attanasio, V. Tarantino, A. Largo*

**Fibre Distribution in RC Beams: Design Implications**

*B. Leporace-Guimil, A. Conforti, G. Pizzigari, P. Serna, F. Sonzogni, C. Failla*

**Data Management using Building Information Modelling for Chemical Building Products**

*L. Coppola, G. Gazzaniga, A. Pavan, V. Savoia*

**Ready-Mix Concrete Certification: the Need of a Responsible Sourcing Scheme – RSS**

*M. Borroni*

**15:30-16:00      Coffee Break**

**16:00-18:00      Session B2 “Repair and Maintenance of Concrete Structures”**

*Chairman: Prof. Giovanni Plizzari, University of Brescia*

**Analytical Model for the Shear Capacity of RC Beams provided with Transverse Reinforcement in Two Different Directions**

*P. Colajanni, S. Pagnotta, A. Recupero, N. Spinella*

**Shear Capacity of RC Beams Strengthened with Steel Reinforced Grout (SRG)**

*L. Ombres, S. Verre*

**Seismic Assessment of Post-Installed Reinforcing Bars with Mortar Based on the European Organization of Technical Assessment**

*G. Genesio, R. Piccinin, S. Nerbano*

**Effect of Supplementary Reinforcement on the Pull-out of Cast-in-Place Anchors**

*G. Di Nunzio, G. Muciaccia*

**Concrete Confined with Fabric-Reinforced Cementitious Matrices – FRCMs: Strength Models**

*R. Della Porta, A. Napoli, R. Realfonzo*

**Experimental and Numerical Study on the Anchorage of Safety Barriers to Bridge Corbels**

*S. Cattaneo, M. Squillace, M. Bruno, R. Piccinin*

**Experimental Behaviour of Steel-Reinforced Grout Systems Bonded to a Concrete Substrate**

*F. Ascione, M. Lamberti, A. Napoli, R. Realfonzo*

**Reinforced-Concrete Structures in Wastewater-Treatment Plants**

*L. Bonomo, P.G. Gambarova, R. Mazzini*

**18:00-19:30      ACI Italy Chapter Board Meeting**

**20:15-23:00      Social Dinner**

*Ristorante “I Quattro Mori”*

*Largo Maria Callas 1 (M1 metro station Cairoli)*

*Milano*

September 20, Friday

**8.15-9.00 Registration**

**9.00-9.15 Information on the works by the Organizing Committee**

**09:15-10:00 Opening session**

*Chairman: Prof. Pietro G. Gambarova, Politecnico di Milano*

**Keynote Lecture “Fibre Reinforced Concrete: Past Experience and Open Questions in Civil Engineering”  
Prof. Marco di Prisco, Politecnico di Milano, Italy**

**10:00-11:15 Session C1 “RC and PC Structures face to Seismic Action”**

*Chairman: Prof. Roberto Realfonzo, University of Salerno*

**Back-Estimated Ductility and Response Modification Coefficient (R factor) for Concrete Shear Walls**

*G. Faraone, T.C. Hutchinson, R. Piccinin, J. Silva*

**Structural Vulnerability of Existing Precast Buildings: Case Studies from the Period 1940 to 1970**

*B. Dal Lago, E. Berretta, L. Ferrara*

**Experimental Investigation on Beam-To-Column Joint with Slab and Transverse Beam under Cyclic Loading**

*A. Marchisella, G. Muciaccia, A. Sharma, R. Eligehausen*

**Seismic Assessment of RC Frame Buildings: Italian Code vs Eurocode**

*V. Mpampatsikos, Z. Kanbir, L. Petrini*

**Reliability and Design Issues of Bonded Anchors Installed Using Different Techniques**

*S. Cattaneo, S. Nerbano, R. Piccinin*

**11:15-11:45 Coffee break**

**11:45-13:00      Session C2 “RC and PC Structures face to Corrosion and Severe Environment”**

*Chairman: Prof. Vyacheslav Falikmann, Moscow State University*

**A Preliminary Study on the Effects of Cracks on Chloride Penetration in Different Concretes**

*N. Russo, M. Gastaldi, P. Marras, L. Schiavi, A. Strini, F. Lollini*

**Mechanical Behaviour of Steel Reinforcement Damaged by Corrosion: a Review**

*A. Benenato, S. Imperatore, B. Ferracuti*

**On the Effect of Freeze-Thaw Cycles in Recycled-Aggregate Concrete and in its Bond with Steel Bars**

*C.S. Rangel, M. Amario, M. Pepe, E. Martinelli, R.D. Toledo Filho*

**Experimental Assessment of the Residual Prestressing Force in PC beams through Nondestructive Tests**

*M. Frizzarin, F. Faleschini, M.A. Zanini, P. Franchetti, C. Pellegrino*

**Reinforced Concrete Slabs in Fire: Reinforcement Type, Static Scheme and their Effect on Structural Behaviour**

*A. Bilotta, A. Compagnone, L. Esposito, E. Nigro*

**13:00-14:00      Lunch**



**14:00-15:15      Session D1 “RC and PC Structures face to Durability and New Materials”**

*Chairman: Prof. Dario Coronelli, Politecnico di Milano*

**Durable Structural Concrete under Extremely Severe Arctic Conditions**

*N. K. Rosental, V. R. Falikman, G. V. Chekbniy, I. N. Usachov*

**Behavior and durability of “free form” concrete shells**

*E. Albani, C. Dusi*

**Analytical Modelling of the Transmission Length in Prestressed Concrete Members**

*N. Fabris, E. Faleschini, C. Pellegrino*

**Flexural Behavior of RC Beams made using Ordinary Portland Cement and Calcium SulfoAluminate Systems**

*D. Colonna, M. Leone, M.A. Aiello, M. Marchi, S. Tortelli*

**Rubber Aggregates from Waste Tyres in Concrete: an Experimental and Numerical Investigation**

*A. Gregori, C. Castoro, M. Mercuri, M. Angiolilli*

**15:15-15:45      Coffee Break**

**15:45-17:00      Session D2 “Special Issues in Concrete Research”**

*Chairman: Prof. Alessandro Fantilli*

**A Parameter-Free Multiscale Framework for Self-Desiccation in Cementitious Materials**

*G. Di Luzio, M. Pathirage, G. Cusatis, E. Masoero*

**Early age fracture performance of 3D printable fiber reinforced cementitious composites**

*L. Esposito, M. Fioretti, M. Cucchi, F. Lo Monte, C. Menna, S. Moro, D. Asprone, L. Ferrara*

**Bond Role in Strut-and-Tie Systems Including Embedded Bars in Tension**

*P.G. Gambarova, R. Invernizzi*

**Experimental Identification of Shear-Failure Modes in a Lightened Precast Wall Element Subjected to Lateral Loading**

*B. Dal Lago, M. Del Galdo, A. Dal Lago, L. Ferrara*

**UHPC: the Future is around the Corner, but is the Industry Ready?**

*M. Francini, L. Enzōr*

**Award in memory of Prof. Luca Bertolini (1966-2017)**

**17:00-17:15      Presentation of the award by Prof. Luigi Coppola (President of ACI Italy Chapter) and Prof. Elena Redaelli (Department of “Chemistry, Materials and Chemical Engineering - Giulio Natta”, Politecnico di Milano)**

**17:15-17:45      Presentation of the prize-awarded paper**

**17:45-18:00      Workshop closure**