Lecce, June 6-9, 2004

Final Program

Sunday, June 6th, 2004

Palazzo Ex Convento dei Teatini – Corso Vittorio Emanuele - Lecce

19.00 Welcome Cocktail offered by SIKA ITALIA

Monday, June 7th, 2004

University Campus – Via per Monteroni- Lecce

08.00-9.00 Registration (ARCHEO desk)

09.00-10.00 Opening Ceremony

10.00-10.30 Keynote Lecture I

“Recent Innovations in Construction Materials”

P. N. BALAGURU - (National Science Foundation - USA)

10.30-11.30 Technical Session 1A - Innovative Coatings

10.30 – 10:50 Penetrability of chloride ions in concrete protected by an acrylic painting

J. B. Aguiar and J. A. Dias

10:50 – 11:10 Advanced synthesis of organic-inorganic nano hybrid materials for coatings

F.B. Buslov, L.D. Shapovalov and O.L. Figovsky

11:10 – 11:30 Electrodeposition and characterization of chromium-tungsten carbide composite coatings from trivalent chromium bath

Z. Abdel Hamid, I.M. Ghayad and K.M. Ibrahim
**10.30-11.30  Technical Session 1B - Flexural and Shear Strengthening 1**

10:30 – 10:50  Parametric study of the material properties and sensitivity analysis of the design variables influencing the performance of FRP-retrofitted flexural members  
**D. I. Kachlakev**

10:50 – 11:10  Strengthening of concrete constructions with externally bonded reinforcement: design concept and case studies  
**D. Van Gemert, S. Ignoul and K. Brosens**

11:10 – 11:30  Moment failure of RC beams externally bonded with CFRP sheets bonded with organic and inorganic matrices  
**H. Toutanji, Y. Zhang and L. Zhao**

**10.30-11.30  Technical Session 1C - Strengthening of Arches**

10:30 – 10:50  Non-linear behaviour and collapse of FRP reinforced masonry arches  
**R. Barsotti and S. Bennati**

10:50 – 11:10  Collapse behaviour of FRP-reinforced masonry arches: a parametric enquiry  
**F. M. Fabiani, U. Ianniruberto and Z. Rinaldi**

11:10 – 11:30  Strengthening of masonry arches with composite materials  
**S. Briccoli Bati, L. Rovero and U. Tonietti**

**11.30 -11.50  Coffee Break offered by ITALCEMENTI Group**

**11.50-13.10  Technical Session 2A - Durability 1**

11:50 – 12:10  First results of chloride penetration modelling in concrete exposed to marine environment at temperate climate  
**M. Borsa, G.L. Guerrini, L. Sanguigno, M. Lavorgna and G. Mensitieri**

12:10 – 12:30  Use of non destructive testing and fracture mechanics parameters to monitor concrete deterioration due to external sulfate attack  
**G. Di Pace and L. Octavio Yepez**

12:30 – 12:50  Determination of concrete properties of a 80 years old building with on site tests  
**B.Y. Pekmezci, H. Yildirim and M. Uyan**

12:50 – 13:10  Factors affecting the durability in service of epoxy resins employed for restoration of historical buildings  
**M. Frigione, M. Lettieri and A.M. Mecchi**
11.50-13.10  Technical Session 2B - Flexural and Shear Strengthening 2

11:50 - 12:10  Increasing of the flexural capacity of RC beams strengthened with CFRP materials. Theoretical and experimental approach.  
L. Anania and A. Badalà

12:10 - 12:30  Probabilistic analysis of the European format in FRP flexural strengthening  
G. Spitaleri and N. Totaro

12:30 - 12:50  Decision support in using fibre reinforced polymer (FRP) composites in rehabilitation of concrete structures  
A. Nezamian, S. Setunge, A. Kumar and J. Fenwick

12:50 - 13:10  Flexural and shear strengthening of reinforced concrete structures with FRP systems: a critical analysis of ACI and CEB-FIP design guidelines  
W. Arena, A. Marzano, O. Manni and P. Rametta

11.50-12.50  Technical Session 2C - Strengthening of Vaults and Domes

11:50 - 12:10  Criteria for the restoration and consolidation of “Camorcanna” vaults with a precious intrados  
E. Quagliarini, M. D’Orazio, R. Giacchetti and A. Stazi

12:10 - 12:30  Structural analysis with F.E.M. method of the elliptical dome of the sanctuary of Vicoforte  
T. Aoki, M.A. Chiorino, R. Roccati and A. Spadafora

12:30 - 12:50  Strengthening of a masonry vault with GFRP laminates: S.Fermo church in Verona  
M.R. Valluzzi, F. Da Porto and C. Modena

13.10 - 14.30  Lunch offered by FICES

14.30-15.00  Keynote Lecture 2

“Behavior of Scaled Steel-Concrete Composite Girders and Steel Monopole Towers Strengthened with CFRP”  
D. SCHNERCH and S. RIZKALLA  - (North Carolina State University - USA)

15.00-16.20  Technical Session 3A - Durability 2

15:00 - 15:20  Water absorption and drying of impregnated brick masonry  
R. Miniotaite

15:20 - 15:40  Volume change and mechanical properties of OPC and GGBS mortars cured in water and sulfate solutions  
M. Uyan, B.Y. Pekmezci and H. Yildirim
15:40 – 16:00 The durability of finishing layer on buildings’ external walls
R. Miniotaite

16.00 - 16:20 Compatibility of repair material with tuff-stone masonries in Salerno’s historic centre
C. D. Vacchiano, P. Scarfato, L. Incarnato and D. Acierno

15.00-16.20 Technical Session 3B - Flexural and Shear Strengthening 3

15:00 – 15:20 Performance evaluation of prestressed-concrete girders strengthened with P-PUT technique
Z.S. Wu, K. Iwashita, K. Hayashi, T. Higuchi, S. Murakami, and T. Ichiryu

15:20 – 15:40 Experimental behaviour of anchoring systems for active and passive strengthening of RC beams with FRP
L. Ascione, E. Di Nardo and L. Feo

15:40 – 16:00 Long-term mechanical interaction between strengthening materials and pre-existing structures
P.G. Bocca and A. Grazzini

16.00 - 16:20 Time-depending behaviour under sustained loads of RC beams externally plated with FRP laminates
L. Ascione, V.P. Berardi and G. Mancusi

15.00-16.20 Technical Session 3C - Strengthening of Masonry Walls 1

15:00 – 15:20 Comparison between FRP strengthening techniques on the out-of-plane behaviour of URM masonry walls
N. Galati, F. Micelli, G. J. Tumialan, A. La Tegola and A. Nanni

15:20 – 15:40 Structural behavior of fiber reinforced mortar with application to masonry walls
W. Mera Ortiz and A. La Tegola

15:40 – 16:00 Experimental tests on masonry walls strengthened with an innovative C-FRP sheet
C. Faella, E. Martinelli, E. Nigro and S. Paciello

16.00 - 16:20 Real scale testing of masonry walls made with natural fiber reinforced mortar
W. Mera Ortiz and A. La Tegola

16.20-16.40 Coffee Break offered by ITALCEMENTI Group
**16.40-18.00  Technical Session 4A - Innovative Materials from Recycling**

16:40 - 17:00  An innovative material from recycled glass to lightweight concrete  
**Z. Józsa and R. Nemes**

17:00 - 17:20  High performance fully recycled materials for civil engineering as an alternative to landfill disposal  
**E. Franzoni, S. Manzi, F. Sandrolini, and M. C. Bignozzi**

17:20 - 17:40  Current industry perspectives regarding use of post consumer carpets in construction  
**G.C. Banik**

17:40 - 18:00  Demonstrating steel fibres from waste tyres as reinforcement in concrete: material characterisation  
**H. Tlemat, K. Pllakoutas and K. Neocleous**

**16.40-18.00  Technical Session 4B - Flexural and Shear Strengthening 4**

16:40 - 17:00  RC Beams strengthened with CFRP laminates subjected to shear loading regime  
**Bencardino F., G. Spadea and R.N. Swamy**

17:00 - 17:20  Retrofit of indeterminate reinforced concrete frames using fiber reinforced polymer laminates  
**S. Okba, A. Abdelrahman, H. Abdellatif and H. Elkarmouty**

17:20 - 17:40  Non linear analysis of RC beams strengthened with FRP: theoretical-numerical comparison  
**S. Coccia, U. Ianniruberto and Z. Rinaldi**

17.40 - 18:00  Evaluation of dynamic behaviour of EBR-FRP reinforced concrete beams  
**B. Bonfiglioli, J. Ibarra Pérez and G. Pascale**

**16.40-17.40  Technical Session 4C - Strengthening of Masonry Walls 2**

16:40 - 17:00  Reinforcing of adobe structures with FRP Bars  
**G. Villa Garcia, F. Ginocchio, G. Tumialan and A. Nanni**

17:00 - 17:20  Mechanical behaviour of natural stone masonry strengthened with FRP- Part I: experimental research  
**B. De Nicolo, B. Grosso, M. Valdes**

17:20 - 17:40  Mechanical behaviour of natural stone masonry strengthened with FRP. Part II: verification by using a finite element method  
**M. Valdes**
Tuesday June 8th, 2004

University Campus – Via per Monteroni- Lecce

09.00-9.30  **Keynote Lecture 3**

“Material Structure and Mechanical Properties of Polymer Modified Concrete and Reinforcement”

**H. SCHORN** - (Technical University of Dresden - GERMANY)

9.30-11.10  **Technical Session 5A  - Innovative Cements and Concretes 1**

9:30 – 9:50  Influence of additions on the properties of self compacting concrete

**F. Colangelo, M. Marroccoli, R. Cioffi and M. Molfetta**

9:50 – 10:10  Fresh and hardened state properties of self-compacting lightweight aggregate fibre reinforced concrete for structural applications

**M. Borsa, M. Molfetta and G. L. Guermini**

10:10 – 10:30  Combination of silica fume, fly ash and amorphous nano-silica in superplasticized high-performance concretes

**M. Collepardi, S. Collepardi, R. Troli and U. Skarp**

10:30 – 10:50  Influence of calcareous filler on interfacial transition zone of conventional and Self-Compacting Concretes

**L. Coppola, P. Zaffaroni and A. Carcagni**

10:50 – 11:10  Strength and shrinkage of high-performance concrete for bridge deck applications

**I. Ray, J. F. Davalos and J. Morris**

9.30-11.10  **Technical Session 5B  - Confinement**

9:30 – 9:50  FRP composite sheet pile walls in waterfront applications

**Y. Shao**

9:50 – 10:10  Confinement of RC columns with FRP materials: a critical comparison between ACI and CEB-FIP design guidelines

**R. Modarelli, O. Manni and P. Rametta**

10:10 – 10:30  Retrofitting of RC columns with inaccessible faces using the mechanical strengthening technique

**A. Al-Tuhami and M. Kamal Abdullah**

10:30 – 10:50  Strengthening of rectangular columns using GFRP

**A. Balsamo, D. Bandera and A. Prota**

10:50 – 11:10  Strengthening technologies for concrete and masonry columns

**Al. La Tegola**
9.30-11.10  Technical Session 5C - Composite Structures

9:30 – 9:50  An experimental evaluation of the stiffening effect of CFRP flange reinforcement and practical end connections on the flexural response of pultruded GFRP WF-beams
  G. Turvey

9:50 – 10:10  Characterisation of uni-strut connectors for pultruded fibre reinforced plastic channels
  M. Evernden, J. T. Mottram and P. Delhees

10:10 – 10:30  Effect of the applied stress distribution on flexural-torsional buckling of steel and FRP thin-walled members: numerical examples
  L. De Lorenzis and A. La Tegola

10:30 – 10:50  Behaviour of pultruded FRP beam-to-beam subassemblies connected by bolted web cleats
  J. T. Mottram, D. Prangley and E.S. Knudsen

10:50 – 11:10  Experimental buckling’s curves for GFRP columns
  A. Di Tommaso, S. Russo and G. Boscato

11.10-11.30  Coffee Break offered by ITALCEMENTI Group

11.30-12.50  Technical Session 6A - Innovative Cements and Concretes 2

11:30 – 11:50  Research and development in design and application of concrete-polymer composites in Europe
  D. Van Gemert, A. Beeldens, S. Ignoul and K. Brosens

11:50 – 12:10  Electrical characterization of cement reinforced with short carbon fibers
  M. Chiarello and R. Zinno

12:10 – 12:30  Hybrid fibre engineered cementitious composites (ECC) for impact- and blast-resistant structures
  Z. Jing, M. Maalej and Q. S. Tong

12:30 – 12:50  Polysaccharide influence on the physical and mechanical behaviour of a renovation mortar. Consequences on the crack propagation at the mortar-substrate interface
  L. Bertrand, A. Bouaffia, and S. Maximilien

11.30-12.50  Technical Session 6B - Confinement and Seismic Retrofit

11:30 – 11:50  Stability of CFRP-confined columns
  L. De Lorenzis, V. Tamuzs, R. Tepfers, V. Valdmanis and U. Vilks
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
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<tr>
<td>11:50 - 12:10</td>
<td>Capacity of beam-column joints under cyclic loading</td>
<td>V. Corinaldesi and G. Moriconi</td>
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<td>12:10 - 12:30</td>
<td>Seismic upgrading of existing RC structures using FRP: a GLD study case</td>
<td>G. Della Corte, E. Parecchia and F. M. Mazzolani</td>
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<td>12:30 - 12:50</td>
<td>Experimental tests and theoretical models on tuff masonry bricks and columns confined with C-FRP sheets</td>
<td>C. Faella, E. Martinelli, S. Paciello and E. Nigro</td>
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<td>11:30 – 13:10</td>
<td>Technical Session 6C - Composite and Metallic Structures</td>
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<td>11:30 – 11:50</td>
<td>Applications of FRP-GRC in Permanent Formwork</td>
<td>G. Kim, P. Waldron and K. Pilakoutas</td>
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<td>11:50 – 12:10</td>
<td>Cast iron arch bridges: from construction to restoration</td>
<td>V. Zerbo, L. Ceriolo and A. Di Tommaso</td>
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<td>12:10 – 12:30</td>
<td>Selection of CFRP systems for steelwork upgrading</td>
<td>N.K. Photiou, L.C. Hollaway and M.K. Chryssanthopoulos</td>
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<td>12:30 – 12:50</td>
<td>Innovative solutions for the realization of historical bridges: case studies</td>
<td>E. Siviero, P. Foraboschi, L. Attolico and E. Giovanetti</td>
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<td>12:50 – 13:10</td>
<td>Interlaminar crack propagation in curved laminated beams</td>
<td>D. Bruno, R. Carpino, F. Greco, P. Lonetti</td>
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<td>13.10-14.30</td>
<td>Lunch offered by ATP Pultrusion and CETMA</td>
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<td>14.30-15.00</td>
<td>Keynote Lecture 4</td>
<td>“Analysis and Restoration of Ancient Masonry Structures: Guidelines and Examples”</td>
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<td>15.00-16.20</td>
<td>Technical Session 7A - Innovative Cements and Concretes 3</td>
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<td>15:00 – 15:20</td>
<td>Evaluation of the durability of textile glass fibre reinforcement in concrete</td>
<td>H. Schorn, M. Schiekel and R. Hempel</td>
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<td>15:20 – 15:40</td>
<td>Tensile tests to study the long-term behaviour of textile reinforced concrete</td>
<td>J. Orlowsky and M. Raupach</td>
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<td>15:40 – 16:00</td>
<td>The interconnection between inner filaments of textile reinforcement by means of polymer modified concrete</td>
<td>B. Walk-Lauffer, M. Raupach, K. Dilger, S. Böhm, F. Mund, U. Dilthey and M. Schleser</td>
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16:00 - 16:20  Long term bending tests on glass fibre reinforced concrete specimens  
H. Schorn and M. Butler

15.00-16.20 Technical Session 7B - Bond

15:00 - 15:20  Optimization of FRP-concrete interface in FRP bonding technique  
H. Niu and Z. Wu

15:20 - 15:40  Numerical analysis of the interface behaviour for FRP applications  
B. Bonfiglioli, L. Cristofori and G. Pascale

15:40 - 16:00  Bond between FRP laminates and curved concrete substrates with anchoring composite spikes  
M.A. Aiello, L. De Lorenzis, N. Galati and A. La Tegola

16:00 - 16:20  Bond behaviour of FRP rebars embedded in concrete  
M.A. Aiello and M. Leone

15.00-16.20 Technical Session 7C - Wood Structures

15:00 - 15:20  Preliminary investigation on the structural behaviour of timber beams strengthened with FRP  
A. Barbieri, A. Di Tommaso and F. Focacci

15:20 - 15:40  The effectiveness of diagonal versus vertical GFRP sheets for strengthening of timber  
S. Hay, D. Svecova and B. Bakht

15:40 - 16:00  Flexural behaviour of glulam beams and joints reinforced with CFRP bars: theoretical analysis  
F. Micelli, V. Scialpi and A. La Tegola

16:00 - 16:20  Wooden arch structures between the XVI and the XIX century: evolution of the analysis criteria  
E. Quagliarini

16.20-16.40 Coffee Break offered by ITALCEMENTI Group

16.40-18.00 Technical Session 8A - Durability

16:40 - 17:00  Effects of different coating on the durability of thermoplastic E-Glass FRP bars  
O. Khelifi, and A. Nanni

17:00 - 17:20  Moisture effects on elastic and viscoelastic properties of CFRP rebars and vinylester binder  
M. A. Aiello, M. Leone, A. N. Aniskevich, and O. A. Plushchik

17:20 - 17:40  Durability of GFRP rods in water and alkaline solution  
F. Micelli and A. La Tegola
17:40 – 18:00 Durability of GFRP-concrete bonded interfaces
J. Jia, T. E. Boothby and C. E. Bakis

16:40-18.00 Technical Session 8B - Bond 2

16:40 – 17:00 Numerical investigation into peeling-off caused at shear cracks of externally bonded CFRP.
K. Klamer, D.A. Hordijk and A. De Boer

17:00 – 17:20 Bond of CFRP strips embedded in lime mortar
M. R. Valluzzi, D. Tinazzi and C. Modena

17:20 – 17:40 Analysis of bond performance between CFRP sheets and calcarenite ashlars under service and ultimate conditions
M. A. Aiello and S. M. Sciotti

17:40 – 18:00 Brittle-failures of RC structural members strengthened with fiber reinforced polymers
G. Camata and E. Spacone

16.40-18.00 Technical Session 8C - Construction Materials and Techniques

16:40 – 17:00 Materials and techniques within the building know-how of central Apulia
P. Pastore

17:00 – 17:20 The simple “matter”
A. Scolaro Monsù

17:20 – 17:40 A Time-Of-Flight laser scanner for architectural applications and monitoring
G. Gianfrate, L. Calcagnile, R. Fontana, M.C. Gambino, M. Greco, E. Pampaloni and L. Pezzati

17:40 – 18:00 A case study on construction products innovation: self-cleaning glass
M. Costantini and F. Cassaro

19.30 Evening Tour - Lecce: Baroque, History and Traditions

21.00 Social Dinner offered by MAPEI
Wednesday June 9th, 2004
University Campus – Via per Monteroni- Lecce

9.30-11.10 Technical Session 9A - Material Characterization

9:30 – 9:50  Interface fracture and durability of GFRP- and CFRP-concrete subject to freeze-thaw and wet-dry cycling
J. F. Davalos, D. M. Boyajian, S. Kodkani, I. Ray and P. Qiao

9:50 – 10:10  Experimental investigation and analysis of non-linear creep of different thermoplastic and thermosetting composite matrices
O. A. Plushchik and A. N. Aniskevich

10:10 – 10:30  Performance evaluations of bond between special and normal concrete using a new shear tool
J. F. Davalos, I. Ray and S. Luo

10:30 – 10:50  Ultrasonic cure monitoring of thermosetting composite matrices
F. Lionetto, M. Frigione, V.A.M. Luprano and A. Maffezzoli

10:50 – 11:10  Application of artificial neural network to mode-i fatigue of interface bonds for dissimilar materials
J. Jia and J. Davalos

9.30-10.50 Technical Session 9B - FRC and Concrete Repair

9:30 – 9:50  Design considerations on the use of steel fibres from waste tyres as reinforcement in concrete
K. Neocleous, H. Tlemat and K. Plakoutas

9:50 – 10:10  Analytical and experimental evaluation of FRC ductility
Z. Rinaldi, A. Grimaldi, G. Galli and G. Spadea

10:10 – 10:30  External unbonded reinforcement: a novel retro-fitting technique
J. Cairns and J. Grant

10:30 – 10:50  Hybrid fiber reinforced SCC for repair of reinforced concrete beams
N. Banthia, F. Majdzadeh and S. Mindess

9.30-11.10 Technical Session 9C - Case Studies

9:30 – 9:50  The restoration of the Margherita Theatre of Bari. An experimentation of yard
M. Candela

9:50 – 10:10  The use of carbon fibres in restoring the stables of the Medici Villa of Poggio at Caiano – Florence
C. Blasi, E. Coisson and D. Ferretti

10:10 – 10:30  Repair and strengthening of the reptile building of the Antwerp zoo
S. Matthys, L. Taenwe and J. Janssens
10:30 – 10:50 The structural strengthening and repair of the bridge over the Cervo river at Miaglano  
F. Giussani, M. Mapelli and F. Mola

10:50 – 11:10 Assessment and repair of a RC structure damaged in a fire - case study  
V. Radonjanin, M. Malesev and R. Folic

11.10-11.30 Coffee Break offered by ITALCEMENTI Group

11.30-12.30 Closing Ceremony

Please note that bus transportation from hotels to the Conference venue and to the social events will be provided to all participants

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Azienda Agraria

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