

ICPIC AGENDA

| SUNDAY 17-09-2023 (Faculty of Civil Engineering) | | | |
|--|---------------|--|---------------|
| PRE-CONFERENCE EVENT | | | |
| | Registration | | 16:00 - 17:30 |
| 1 | T. Piotrowski | EDUCATIONAL LECTURE: Basic knowledge, progress and future of C-PC | 17:30 - 18:30 |
| RECEPTION | | | from 19:00 |

| MONDAY 18-09-2023 (Main Building) | | | |
|--|---|--|---------------|
| Registration | | | 8:30 - 9:15 |
| OPENING CEREMONY A. Garbacz, R. Geryto | | | |
| OPENING SESSION Chairpersons: J. Aguiar, M. Frigione, M. Kawakami | | | Small Hall |
| 1 | A. Garbacz, P. Łukowski, B. Chmielewska | KEYNOTE 1: Sustainable C-PC in research and practical applications. Polish experiences | 9:45 - 10:10 |
| 2 | J. H. Yeon, Y. G. Choi, K. S. Yeon | KEYNOTE 2: Applications of Concrete-Polymer Composites: Where Are We Now? | 10:10 - 10:35 |
| 3 | Sz. Skibicki, M. Kaszyńska | KEYNOTE 3: Sustainable development approach for 3D concrete printing | 10:35 - 11:00 |
| Coffee Break | | | 11:00 - 11:30 |

| Session 1. CHALLENGES FOR C-PC IN CIRCULAR ECONOMY Chairpersons: R. Drochytka, M. Kosior-Kazberuk, O. Weichold | | | |
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| Small Hall | | | |
| 1 | K. J. L. Lee, S. F. Wong | Recycled Mixed Plastic Fine Aggregate in Cement Concrete | 11:30 - 11:45 |
| 2 | R. Arroyo, S. González-Moreno, L. A. Cuenca-Romero, V. Calderón | Eco-cement cobblestones with polyurethane wastes | 11:45 - 12:00 |
| 3 | A. Sarcinella, J. L. Barroso de Aguiar, S. Cunha, M. Frigione | Novel sustainable polymer-based Phase Change Materials (PCMs) for mortars based on different binders for the energy efficiency of buildings located in different climatic regions | 12:00 - 12:15 |
| 4 | V. Calderón, R. Arroyo, C. Alía, L. Garijo, S. González-Moreno, V. Calderón, R. Arroyo, C. Alía, L. Garijo, S. González-Moreno | Properties of eco-cement blocks made with polymer wastes and graphene | 12:15 - 12:30 |
| 5 | S. Cunha, R. Silva, J. Aguiar | Cement mortars with incorporation of foundry industry wastes: physical, mechanical and durability behavior | 12:30 - 12:45 |
| 6 | J. Sokółowska, B. Chmielewska | Carbon Footprint and CO2 emissions in the Concrete-Polymer Composites Technology | 12:45 - 13:00 |

LUNCH

| Special Symposium: C-PC in CIRCULAR ECONOMY: SEARCHING FOR A NEW PARADIGM Chairpersons: L. Czarnecki, R. Wang | | | |
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| Small Hall | | | |
| 1 | L. Czarnecki | Introduction/Opening | 14:30 - 14:40 |
| 2 | L. Czarnecki, D. Van Gemert, R. Wang, M. Reda Taha | Searching for a new C-PC development paradigm | 14:40 - 15:00 |
| 3 | J. Tomaszewska | Construction versus circular economy | 15:00 - 15:20 |
| 4 | P. Falaciński, A. Machowska | Condition of Circular Economy in Poland | 15:20 - 15:40 |
| 5 | D. H. Murcia, M. Reda Taha | Emerging Materials and Technologies for Next-Generation Sustainable and Resilient Polymer Concrete | 15:40 - 16:00 |
| Coffee Break | | | 16:00 - 16:25 |
| 6 | R. Wang, S. Zhang | Interaction between polymer and cement: A review | 16:25 - 16:45 |
| 7 | P. Woyciechowski, W. Jackiewicz-Rek, B. Jaworska | Soft means of concrete modification - curing conditions | 16:45 - 17:05 |
| 8 | M. Frigione, J.L.B. de Aguiar | Innovative building materials containing post-consumer plastics: a rewarding example of Circular Economy in construction | 17:05 - 17:25 |
| 9 | L. Czarnecki | General discussion - draft of recommendations | 17:25 - 18:00 |
| 10 | L. Czarnecki | Closing the Symposium | |
| GALA DINNER | | | 20:00 |

TUESDAY 19-09-2023 (Rektorska 4)

| Session 2. ALTERNATIVE BINDERS Chairpersons: L. Courard, M. Kepniak, K. Kalinowska-Wichrowska | | | |
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| Conference Room 4.01/4.02 | | | |
| 1 | R. Wang | KEYNOTE 4: The role of polymer in calcium sulfoaluminate cement-based materials | 9:00 - 9:25 |
| 2 | J. G. López, I. Santamaría-Vicario, B. Zurro-García, A. M. Paredes-Núñez, C. J. Petrement, A. R. Saiz | Study and characterization of gypsum mortars made with phenolic melamine polymer wastes from the decorative paper industry | 9:25 - 9:40 |
| 3 | K. Kalinowska-Wichrowska, E. Pawluczuk, M. Kosior-Kazberuk, F. Chyliński, A. Vidales Barriguete, C. Pina Ramirez | Geopolymer composites with recycled binders | 9:40 - 9:55 |
| 4 | A. Grellier, D. Bulteel, L. Courard | Recycled brick fines for new alkali activated binder | 9:55 - 10:10 |
| 5 | M. Zia ul haq, H. Sood, R. Kumar | Unveiling the pH-Setting Time-Compressive Strength Relationship in Alumina Silica Waste Materials | 10:10 - 10:25 |
| 6 | B. Bissonnette, A. Rodrigue, J. Duchesne, B. Fournier | Shrinkage of alkali-activated slag-fly ash concrete cured at ambient temperature | 10:25 - 10:40 |
| 7 | A. Rodrigo-Bravo, S. Gutiérrez-González, V. Calderón Carpintero, L. A. Cuenca-Romero | Valorisation of polyurethane waste in gypsum mortar to improve its circular economy | 10:40 - 10:55 |
| 8 | Sz. Sikora, E. Gapys, B. Michałowski, A. Ignierowicz, M. Oleksik, M. Garecki, M. Hynowski (Sponsor's presentation) | Geopolymer coating as protection of concrete against chemical attack and corrosion | 10:55 - 11:15 |
| Coffee Break | | | 11:15 - 11:30 |

Session 3. REINFORCEMENT AND STRENGTHENING (parallel session) Chairpersons: B. Bissonnette, J. Fangrat, M. Drusa

| Conference Room 4.04/4.05 | | | |
|---------------------------|--|--|---------------|
| 1 | P. Moyo, V. James | KEYNOTE 5: Fatigue behaviour of patch-repaired and CFRP-strengthened reinforced concrete beams | 9:00 - 9:30 |
| 1 | P. Moyo, P. Habimana, M. Kabani | The behaviour of R.C. beams patch-repaired and strengthened with CFRP strips subjected to impact loading: An experimental investigation. | |
| 2 | P. Moyo, S. Mundeli | Experimental and numerical investigation of patch-repaired and CFRP-strengthened beams | |
| 3 | J. Krassowska, M. Kosior-Kazberuk | Serviceability limit state of fiber reinforced concrete beams with BFRP bars and stirrups | 9:30 - 9:45 |
| 4 | A. B. Rezaie, M. Liebscher, M. Mohammadi, V. Mechtcherine | Fast tannic acid surface modification for improving PE fiber-cement matrix bonding performances | 9:45 - 10:00 |
| 5 | M. Urbański, E. Szmigiera, G. Adamczewski, P. Woyciechowski, K. Protchenko | Bond Characteristics of BFRP and GFRP Bars in Concrete with Additives - Results from a Beam Test Study | 10:00 - 10:15 |
| 6 | M. Adamu, Y. E. I. Mansour | Effect of Elevated Temperature on the Strength of Date Palm Fiber Reinforced Concrete Containing Silica Fume | 10:15 - 10:30 |
| 7 | J. Šušteršič, R. Ercegovič, S. Drolc, N. Kabashi | Polypropylene Fiber Reinforced - Latex Modified Mortar for installation of granite paving blocks on various road sections | 10:30 - 10:45 |
| 8 | M. Klun, J. Šušteršič, R. Ercegovič, M. Mikoš, A. Kryżanowski | Underwater abrasion resistance of Fibre Reinforced - Latex Modified Concrete with Granulated Rubber | 10:45 - 11:00 |
| 9 | M. Kadelá, M. Drusa | Foamed concrete reinforced with polypropylene fibers in geotechnical applications | 11:00 - 11:15 |
| Coffee Break | | | 11:15 - 11:30 |

| Session 4. REPAIR AND PROTECTION OF CONCRETE STRUCTURES Chairpersons: B. Chmielewska, A. Flohr, P. Moyo | | | |
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| Conference Room 4.01/4.02 | | | |
| 1 | Ł. Sadowski, L. Courard, B. Bissonnette, A. Garbacz, J. Hota | KEYNOTE 6: Adhesion versus concrete morphology in layered systems: developments and applications | 11:30 - 11:55 |
| 2 | J. Hodul, R. Drochytka, T. Zlebek | Chemically Resistant Concrete Coating Systems with Secondary Raw Materials | 11:55 - 12:10 |
| 3 | M. Kawakami, K. Demura, M. Wakasugi, F. Omata, S. Satoh | Recent Application of Concrete Polymer Materials for Highway Bridges in Japan | 12:10 - 12:25 |
| 4 | T. Kanda, M. Suzuki, M. Wakasugi | Development of Repair Method for Re-deteriorated RC Slab after Thickening Upper Surface | 12:25 - 12:40 |
| 5 | B. Bissonnette, W. Jackiewicz-Rek, L. Courard, A. Garbacz, F. Modjabi-Sangnier, A. M. Vaysburd | Shrinkage and dimensional compatibility assessment of sustainable concrete | 12:55 - 13:10 |
| 6 | O. Weichold | Ionic conductive polyesters - assessing the risk of corrosion in steel-reinforced concrete | 13:10 - 13:25 |
| LUNCH / MEET THE SPONSORS AT LOBBY | | | 13:25 - 15:00 |

| Session 5. IMPROVEMENT OF THE C-PC PROPERTIES Chairpersons: A. Kryżanowski, J. Sokółowska, Lu Zichen | | | |
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| Conference Room 4.01/4.02 | | | |
| 1 | A. Cwirzeń | KEYNOTE 7: Nanomonitoring of concrete microstructures | 15:00 - 15:25 |
| 2 | A. Flohr, C. Rohde, S. Devarajamohalla Narayana, A. Osburg | Evaluation of Strength and Modulus of Elasticity of Polymer-modified Cement Concrete (PCC) under Thermal Impact within a Defined Service Temperature Range | 15:25 - 15:40 |
| 3 | N. Kai, M. Kawakami, M. Kido, K. Ishitsuka, Y. Kuwahara | Current Status of Resin Concrete in Japan | 15:40 - 15:55 |
| 4 | J. H. Yeon, Y. G. Choi, C. J. Yang, K. S. Yeon | Effect of Polymer Paste Content on the Porosity and Strength of Pervious Polymer Concrete | 15:55 - 16:10 |
| 5 | H. Yamada, M. Wakasugi, T. Kanda, T. Seki, K. Ichimiya | Basic study on ultra rapid hardening alkali activated material using sodium orthosilicate | 16:10 - 16:25 |
| 6 | P. G. G. Lascuirain, A. Amendola, M. Frigione, A. Sarcinella, L. Toniolo, S. Goidanich | Optimization of Eco-Sustainable, Form-Stable Phase Change Material to be incorporated in Aerial-Lime-Based mortars | 16:25 - 16:40 |

YOUNG RESEARCHER POSTER SESSION / COFFEE (Rektorska 4) Chairpersons: V. Calderon, T. Piotrowski, A. Sabouni

| Conference Room 4.01/4.02 | | | |
|---------------------------|--|--|-------------|
| 1 | P. Duży, I. Hager, M. Chojińska-Colombel, O. Amiri | Chloride diffusion and mechanical performances of geopolymer concrete with blended precursor | 16:40-16:46 |
| 2 | K. Krzywiński, Ł. Sadowski | Improvement of the thermal shock resistance of epoxy resin coating using sedimented recycled fine aggregate | 16:46-16:52 |
| 3 | J. Hodul, L. Meszarosova, N. Žižková | Utilisation of hydrophobic agents for water-repellent cement screeds intended for external thermal insulation composite systems | 16:52-16:58 |
| 4 | H. K. Jeon, Y. J. Jung, and S. H. Jang | Development of Mechano-Responsive CNT-Epoxy concrete | 16:58-17:04 |
| 5 | P. Prochoń, T. Piotrowski, L. Courard, Z. Zhao | The effects of calcium and phosphate compounds on the mechanical and microstructural properties of fly ash geopolymer mortars | 17:04-17:10 |
| 6 | A. Chowaniec-Michalak, S. Czarnecki, Ł. Sadowski | Towards the Use of Waste Limestone Powder as a Filler for Epoxy Coatings in Floors: Research on Mechanical Properties | 17:10-17:16 |
| 7 | N. Žižková, J. Hodul, R. Drochytka | Study on the Use of Glass By-products for Sustainable Polymer-Modified Mortars | 17:16-17:22 |
| 8 | W. Polienko, K. Holschemacher | Influences of the effectiveness of a column confinement with textile reinforced concrete (TRC) | 17:22-17:28 |
| 9 | M. Wydra, G. Sadowski, P. Dolny, J. Fangrat | Crack propagation analysis of model concrete columns with BFRP reinforcement bars | 17:28-17:34 |
| 10 | K. Ogrodowska, M. Urbański, A. Garbacz | Effect of hybridization of BFRP bars on their microstructure and mechanical properties | 17:34-17:40 |
| 11 | M. Kepniak | Recycled Cement concrete as an eco-friendly aggregate in polymer composite - application feasibility | 17:40-17:46 |
| 12 | F. W. van Zyl, D. Kruger | The use of Polymer Concrete as a cost-effective and durable alternative for rapid pothole repair in asphalt surfaces | 17:46-17:52 |
| 13 | D. Parbhoo Gulabbhai, D. Kruger, M. K. Hira | Testing the Performance of Vinyl Ester and Polyester Polymer Concrete Following Exposure to Artificially Induced Climatic Environments | 17:52-17:58 |
| 14 | T. Mrohs, A. Jung, O. Weichold | Alkaline hydrogels - multifunctional materials for concrete rehabilitation | 17:58-18:04 |
| 15 | K. Tomiczak | Methods for managing the tacit knowledge of employees with long scientific seniority using the example of research institutions. Preliminary assumptions | 18:04-18:10 |
| DINNER BY VISTULA RIVER | | | 20:00 |

WEDNESDAY 20-09-2023 (Rektorska 4)

| Session 6. ADMIXTURES AND ADDITIVES Chairpersons: S. Cunha, P. Łukowski, A. Sarcinella | | | |
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| Conference Room 4.01/4.02 | | | |
| 1 | J. Zhao, M. Liebscher, G. Aimor, V. Mechtcherine | Fast cured mineral-impregnated carbon-fiber (MCF) reinforcements made of geopolymer as a promising alternative to conventional fiber reinforced polymer (FRP) systems | 9:00 - 9:15 |
| 2 | K. Demura, T. Saito | Effect of Polymer Content on Properties of Polymer Cement Mortar | 9:15 - 9:30 |
| 3 | M. Wakasugi, T. Fukui, T. Kanda, K. Demura | Effects of Polymers and Other Material Components on Electrical Resistivity of Cement Mortar | 9:30 - 9:45 |
| 4 | C. Guo, Q. Wan, R. Wang, B. Chen, N. Chen | Effect of the cellulose ether on water loss of the calcium sulfoaluminate cement mortars | 9:45 - 10:00 |
| 5 | P. Vegera, R. Khmil, Z. Blikharsky, I. Grynova, O. Korobko | Shear deformability of reinforced concrete beams strengthened with the FRCM system | 10:00 - 10:15 |
| 6 | Z. Lu, Z. Liu, L. Zhang, Z. Sun | Influence of aging condition on the hydration and setting performance of cement paste in the presence of triethanolamine | 10:15 - 10:30 |
| 7 | B. Michałowski, E. Fiks, A. Fornal, A. Ignierowicz, M. Oleksik, S. Czernik (Sponsor's presentation) | Replacement of fly ash with hard-to-sell amphibolite fraction, in the production of vibro-pressed concrete elements | 10:30 - 10:50 |
| Coffee Break | | | 10:50 - 11:05 |

Session 7. SPECIAL PROPERTIES OF CONCRETE Chairpersons: M. Piasecki, M. Wakasugi, N. Žižková

| Conference Room 4.01/4.02 | | | |
|---------------------------|---|--|---------------|
| 1 | M. Sambucci, G. Gullo, M. Valente | Optimization of tire rubber-concrete core materials for application in new sandwich-structured cementitious composites | 11:05 - 11:20 |
| 2 | P. Vaccari, A. Speghini | Sustainable Encapsulation of Phase Change Materials for Smart Building Applications | 11:20 - 11:35 |
| 3 | S. Cunha, I. Aguiar, J. Aguiar | Physical and Mechanical Characterization of Cement Boards with Incorporation of Free Phase Change Materials | 11:35 - 11:50 |
| 4 | M. A. Dehghani Najvani, D. Heras Murcia, M. Reda Taha | Evolution of Early-age mechanical and failure behavior of 3D printed polymer concrete | 11:50 - 12:05 |
| 5 | A. O. Erüz, M. H. Özkul, Ö. Akalin, M. Maraşlı | The effect of modified Andreasen particle-packing model on polymer modified self-leveling heavy-weight mortar | 12:05 - 12:20 |
| 6 | T. Piotrowski, P. Prochoń, M. Wojtkowska | Neutron radiation shielding of C-PC and geopolymers | 12:20 - 12:35 |

CLOSING SESSION - CONCLUDING REMARKS Chairpersons: L. Czarnecki, A. Garbacz

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| LUNCH | | | 13:00 - 14:30 |
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