

# ICRCS Technical Program

Day1 Wednesday 7 Sept.		
13:45-14:15	<p style="text-align: center;"><b>Invited plenary speech</b>  <b>Bldg#1 Science hall</b>  <b>Chair: Ippei Maruyama (Nagoya University, Japan)</b>  <b>Seismic Performance and Conservation of Rammed Earth Constructions (on-line)</b>  <b>Daniel V. Oliveira</b>  <b>University of Minho</b></p>	
14:15-14:30	Moving	
Room	Science Hall	A
14:30-16:00	<p><b>Conservation of Structures 1</b>  <b>Chair: Noboru Yuasa (Nihon University, Japan)</b></p>	<p><b>Design for durability, Chloride Attack 1</b>  <b>Chair: Minoru Kunieda (Gifu University, Japan)</b></p>
	<p>(<b>Keynote</b>) Reinforcement of Handa Akarenga Building, Japan            Takayoshi Aoki            Nagoya City University, Japan</p>	<p>Determination of Chloride Ion Diffusivity in Calcium Silicate Hydrate by Migration Test            Lianyao Xiong, Guoqing Geng            National University of Singapore, Singapore</p>
	<p>Experimental Study on Quantitative Evaluation of Repair in RC Beam with Deterioration using Natural Frequency and Mechanical Behavior Related to Condition of Damage            Yilong Cao, Akihiko Nishimura, Xiu Luo, Masao Okoshi, Wendong Tang, Hidekazu Nishimura            Keio University, Japan</p>	<p>Chloride Uptake of Repair Materials Containing Layered Double Hydroxides            Mohammadali Yazdi, Elke Gruyaert, Kim Van Tittelboom, Nele De Belie            Ghent University, Belgium</p>
	<p>Thermal Mortars for Retrofitting Historic Masonry Walls: Reductions of Energy Demands and Comparison with More Common Insulation Materials.            Magda Posani, Rosario Veiga, Vasco Peixoto de Freitas            ETH Zurich, Switzerland</p>	<p>A Study on the Chloride Diffusion and Microstructure of Alkali-Activated Mortar            Antonino Runci, John Provis, Marijana Serdar            The University of Zagreb, Croatia</p>
	<p>Effect of Ageing of Lime Putty in the Morphology and Weathering Resistance of Lime Mortars (on-line)            Anupama V.A., Manu Santhanam,            IIT Madras, India</p>	<p>Correlating Chloride Migration, Diffusion and Resistivity of Limestone Calcined Clay Mortar Based on Low Grade Clay            Kiran Ram, Diana Londono-Zuluaga, Marijana Serdar, Karen L Scrivener            The University of Zagreb, Croatia</p>
16:00-16:30		
16:30-18:00	<p><b>Conservation of Structures 2</b>  <b>Chair: Takeshi Iyoda (Shibaura Institute of Technology, Japan)</b></p>	<p><b>Design for Durability, Chloride Attack 2</b>  <b>Chair: Tomoko Fukuyama (Ritsumeikan University, Japan)</b></p>
	<p>Specification Transition and Strength Experiment of Wood Lath and Plaster Technique in Japan (on-line)            Kentaro Oka, Masaki Tamura            Kogakuin University, Japan</p>	<p>Study on the Effect of the Corrosive Environment in Concrete on the Corrosion Suppression Effect of Lithium Nitrite (on-line)            Satoshi Oga, Hitoshi Hamasaki            TOYO CONSTRUCTION CO.,LTD., Japan</p>
	<p>The Conservation State of a Funicular Railway Infrastructure from the Beginning of the XX Century (on-line)            Christian Paglia, Cristina Mosca,            University of Applied Sciences of Southern Switzerland, Switzerland</p>	<p>Studying Concrete Blocks in Real Environments and Comparing to Laboratory Experiments            Mickael Saillio, Veronique Baroghel-Bouny, Matthieu Bertin, Baraka Mohamed, Julien Vincent, Jean-Baptiste D'Espinose de Lacaillerie            Gustave Eiffel University, France</p>
	<p>Deterioration Survey Research of Reconstruction Project Buildings after the Great Kanto Earthquake Sougo Mujin Building            Noriaki Taga, Kei-ichi Imamoto, Chizuru Kiyohara, Manabu Kanematsu, Hitoshi Hamasaki            Tokyo University of Science, Japan</p>	<p>Influence of Water Penetration on Steel Corrosion in Carbonated Concrete (on-line)            Takao Ueda, Akira Nanasawa            Tokushima University, Japan</p>
	<p>Survey on Construction Methods and Condition Assessment of Reinforced Concrete Structure "Taminosuke Kume Residence" Built in around 1912            Masamichi Endo, Kei-ichi Imamoto, Chizuru Kiyohara, Noriaki Taga            Tokyo University of Science, Japan</p>	<p>Study on Relationship between Voids of Hardened Cement around Rebar and Corrosion of Rebar (on-line)            Kazuya Honda, Minoru Kunieda            Sumitomo Osaka Cement Co.,Ltd., Japan</p>
		<p>A Novel Unaxial Penetration Approach to Investigate Sulfate Attack on Cement-Based Materials (on-line)            Qiao Wang, William Wilson, Karen Scrivener            EPFL, Switzerland</p>

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13:45-14:15	<p style="text-align: center;"><b>Invited plenary speech</b> Bldg#1 Science hall</p> <p style="text-align: center;"><b>Chair: Ippei Maruyama (Nagoya University, Japan)</b></p> <p style="text-align: center;"><b>Seismic performance and conservation of rammed earth constructions (on-line)</b></p> <p style="text-align: center;"><b>Daniel V. Oliveira</b> University of Minho</p>	
14:15-14:30		
Room	B	C
14:30-16:00	<p><b>Monitoring 1</b> <b>Chair: Satoshi Fujimoto (Utsunomiya University, Japan)</b></p> <p>Effects of Dry-Type Device and Sampling Diameter on The Water Content Ratio of Concrete Koji Arita, Akio Tanaka Nippon Institute of Technology, Japan</p>	<p><b>Sustainable Materials 1 (New Materials )</b> <b>Chair: Tomoko Fukuyama (Ritsumeikan University, Japan)</b></p> <p>Mechanical Behavior of Twin-pipe Printed Concrete Yaxin Tao, Kim Van Tittelboom, Yong Yuan, Geert De Schutter Ghent University, Belgium</p>
	<p>One-Year Monitoring of Relative Humidity inside Reinforced Concrete Building in Comparison with Estimated Climatic Conditions Satoshi Fujimoto, Taihei Kawasaki Utsunomiya University, Japan</p>	<p>Structural Build-up Rate Evaluation of Printable Mortars with CSA Cement Substitutions Luiza R. M. Miranda, Karel Lesag, Geert De Schutter Magna-Vandepitte Laboratory, Belgium</p>
	<p>Physical Chemistry Properties of First Tokachi Bridge Concrete after 74 Years from Construction Hisatoshi Shimada, Susumu Yoshida, Akinori Shimata Civil Engineering Research Institute for Cold Region, Japan</p>	<p>Development of an Innovative Insulation Fire Resistant Material from the Construction and Demolition Waste (on-line) Salmabanu Luhar, Ponsian Robert, Ioanna Giannopoulou, Demetris Nicolaides Frederick Research Center, Cyprus</p>
	<p>Sensitivity of Ultrasonic P and S-waves Velocities to The Dose of Sodium Sulfate as Alkaline Activator in Hybrid Binder Systems Containing GGBFS Juan M. Etcheverry, Yury Villagran-Zaccardi, Nele De Belie Ghent University, Belgium</p>	<p>Fundamental Study on Highly Acid-Resistant Concrete Pipes by Centrifugal Molding Minoru Hata, Katsumi Sugimoto, Etsuro Hayashi, Shingo Miyazawa Nippon Hume Corporation, Japan</p>
	<p>Early Reaction Process of Alkali-activated Cements Monitored by Ultrasonic Wave Technology Xiaodi Dai, Geert De Schutter Ghent University, Belgium</p>	<p>Eco Friendly Stabilization of Loam with Calcined Clay and Potassium Hydroxide: a New Approach to Improve Water Resistance Tanja Manninger, Katrin Rübner, Julia von Werder Bundesanstalt für Materialforschung und -prüfung, Germany</p>
		<p>The Effect of Drainage on Compressive Strength of Cement Slurry with Landslide Sediment Itaru Horicuchi, Yoichi Mimura National Institute of Technology, Kure College, Japan</p>
16:00-16:30		
16:30-18:00	<p><b>Monitoring 2</b> <b>Chair: Michael Henry (Shibaura Institute of Technology, Japan)</b></p> <p>Electromechanical Behavior of Auxetic Cementitious Cellular Composites (ACCCs) Incorporating Carbon Fibers Yading Xu, Branko Savija Delft University, Netherlands</p>	<p><b>Sustainable Materials 2 (New Materials, Asphalt)</b> <b>Chair: Ippei Maruyama (Nagoya University, Japan)</b></p> <p>Permeable Concrete: New Possibilities, New Solutions (on-line) Vyacheslav R. Falikman, Pavel N. Sirotnin JSC National Scientific Research Center, Russia</p>
	<p>Monitoring Asphalt Concrete Cracking and Healing Using Ultrasonic Characterization Dandi Zhao, Roberto M. Aurilio, Haya Almutairi, Hassan Baaj, Pejooan Tavassoti, Giovanni Cascante University of Waterloo, Canada</p>	<p>Development of PCM-containing Mortar as a Finishing Material for Restraining Heat Island Phenomenon Tatsuki Endo, Kei-ichi Imamoto, Chizuru Kiyohara Tokyo University of Science, Japan</p>
	<p>Self-healing Assessment by Means of Ultrasonic Measurements Gerlinde Lafever, Eleni Korda, Danny Van Hemelrijck, Didier Snoeck, Dimitrios G. Aggelis Vrije Universiteit Brussel, Belgium</p>	<p>Investigating the Impact of Thermal Properties on the Microstructure of Asphalt Binder Modified with Phase Change Materials and Glass Powder Haya Almutairi, Ali Qabu, Hassan Baaj University of Waterloo, Canada</p>
	<p>Evaluation of Self-healing Properties of Fiber-Reinforced Cementitious Composites Using Reflected Terahertz Waves (on-line) Shoumi Hara, Koshi Shimizu, Tomoya Nishiwaki, Tadao Tanabe, Hitoshi Hamasaki Tohoku University, Japan</p>	<p>Degradation Characterization of Asphalt Binders Using the Oxidative Induction Technique Roberto M. Aurilio, Ali Qabur, Hui Liao, Hassan Baaj University of Waterloo, Canada</p>
	<p>Evaluation of Crack Self-healing Behavior in Mortar Using Electrical Resistivity Michael Henry, Tanakorn Arnarnwat Shibaura Institute of Technology, Japan</p>	<p>Effect of the Use of Composite Plastic Packaging Waste (CPPW) on the High Temperature Performance of Asphalt Binders Ali Qabur, Hassan Baaj, Mohab El-hakim, Anat Lo University of Waterloo, Canada</p>
		<p>A Systematic Approach to Evaluate the Efficacy of Different Rejuvenators for Regenerating Reclaimed Asphalt Cement Hui Liao, Pejooan Tavassoti, Hassan Baaj University of Waterloo, Canada</p>

# ICRCS Technical Program

Day2 Thursday 8 Sept.		
Room	G	A
8:00-10:00	<b>Design for Durability, SCMs</b> <b>Chair: Yuichiro Kawabata (Port and Airport Research Institute, Japan)</b>	<b>Design for Durability, Mechanism</b> <b>Chair: Yoichi Mimura (National Institute of Technology, Kure College, Japan)</b>
	Potential Use of Cockle Shell Ash as Cement Component in Concrete: Autogenous Healing Ability Chao-Qun Lye, Kian Hau Kong, Ser Tong Quek National University of Singapore, Singapore	Alkali Silica Reaction Progress in an Australian Aggregate Concrete: Immersion Test Studies Brendan Boyd-Weetman, Paul Thomas, Pre DeSilva, Vute Sirivivatnanon University of Technology Sydney, Australia
	Effect of Use of RHA with Different Luxan Values on Compressive Strength and Drying Shrinkage of Mortar Junho Kim, Yuta Suzuki, Kai Sakamoto, Manabu Kanematsu Tokyo University of Science, Japan	Susceptibility of Heat-Cured Concrete to Deleterious DEF; the Role of Alkali, Sulfate, and Temperature Liam Martin, Paul Thomas, Pre de Silva, Vute Sirivivatnanon University of Technology Sydney, Australia
	Thermal Curing of Limestone Calcined Clay Cements (LC3) in Singapore with Different Kaolinite Content Yuchen Hu, Guoqing Geng National University of Singapore, Singapore	A Study on the Bond Deterioration between ASR/DEF Damaged Concrete and Reinforcement using Discrete Mesoscale Analysis Jie Luo, Shingo Asamoto, Kohei Nagai The University of Tokyo, Japan
	Carbonation of LC3 Binders with Clinker Factors of 50% and Below: A Comparison with Fly Ash, Slag and Natural Pozzolans (on-line) Franco Zunino, Karen L. Scrivener EPFL STI IMX LMC, Switzerland	Multi-Modal Imaging Approach to Assess Radiation Damage in Concrete Krishna Chaitanya Polavaram, Nishant Garg University of Illinois Urbana Champaign, United States
	Microstructure of Cement Paste Incorporating Low Grade Calcined Clay Matea Flegar, Marijana Serdar, Diana Londono-Zuluaga, Karen Scrivener University of Zagreb, Croatia	Effectiveness of Freezing and Thawing Test for Concrete using Cylindrical Specimens (on-line) Haruka Ikadatsu, Yu Tominaga, Masahiro Hyodo, Hidehiko Ogata Tottori University, Japan
	Effect of Superabsorbent Polymer on High-Strength Microconcretes with Metakaolin Arthur Aviz Palma e Silva, Valdirene Maria Silva Capuzzo, Eugenia Fonseca Silva, Barbara Santos Barbalho University of Brasilia, Brazil	Concrete for High-Temperature Thermal Energy Storage (TES) Application (on-line) Jorge S. Dolado, Mohammad Rahjoo, Guido Goracci, Pavel Martauz, Esther Rojas and Juan José Gaitero Centro de Física de Materiales CFM CSIC-UPV/EHU, Spain
	Durability of Lightweight Aggregate Concrete Incorporating High Volume Fly Ash (on-line) Chung-Hao Wu, Huang Hsing Pan, Chin-Tung Cheng National Kaohsiung University of Science and Technology, Taiwan	
Understanding the Effect of Bauxite Residue on Properties of Cementitious Composite Ivana Vlastic Kancir, Matea Flegar, Marijana Serdar University of Zagreb, Croatia		
10:00-10:30	Coffee	
10:30-12:30	<b>Design for Durability, Cement Chemistry</b> <b>Chair: Choe Hongbok (Tokyo University of Science, Japan)</b>	<b>Design for Durability, Mechanical Properties</b> <b>Chair: Masahiro Hyodo (Tottori University, Japan)</b>
	Curing Time Effect on Neutron Radiography Visualization and Deformation Measurements in Cement Pastes during Imbibition Natalia Alderete, Yury Villagran Zaccardi, Yasmina Shields, Philip Van den Heede, Pavel Tirtik, Nele De Belie Ghent University, Belgium	The Effect of Stiffness on Tensile Creep of Concrete at Early Age (on-line) Riku Matsumoto, Yoichi Mimura, Vanissorn Vimonsatit, Itaru Horiguchi, Isamu Yoshitake National Institute of Technology, Kure College, Japan
	Influence of Gypsum on Hydration Rate of Belite Cement Antonina Goncharov, Semion Zhutovsky, Technion - Israel Institute of Technology, Israel	Lightweight Ultra High-performance Concrete: Design and High Temperature Properties Jian-Xin Lu, Chi Sun Poon The Hong Kong Polytechnic University, Hong Kong
	Hydration Kinetics of Alite Pastes Mixed with Seawater and Single Salt Solutions Yanjie Sun, Chi Sun Poon The Hong Kong Polytechnic University, Hong Kong	Characterization of Lightweight Aggregates Concrete at High Temperature using Acoustic Emission Matthieu Pettmann, Anne-Lise Beaucour, Javad Eslami, Tine Tysmans, Dimitrios Aggelis, Albert Noumowe CY Cergy Paris Universite, France
	On the Origin of Strength of Calcium Silicate Hydrate Zhe Zhang, Guoqing Geng National university of Singapore, Singapore	Combining Microfibres and 3D Textiles in Cement Composites: Towards an Optimal Casting Process Ciska Gielis, Michael El Kadi, Didier Snoeck, Tine Tysmans Vrije Universiteit Brussel (VUB), Belgium
	Structure Development at Very Early-Age of Portland Cement with Shrinkage Reducing Agents Monitored by In-Situ SAXS Keisuke Takahashi, Shingo Asamoto, Kunio Matsui, Naoki Sakamoto UBE Industries, Ltd., Japan	Flexure and Shear Behavior of Precast Hollow Core Slabs Made with Structural Lightweight Aggregate Concrete Veerendar Chetharajupalli, Sumit Sahoo, S Suriya Prakash Indian Institute of Technology Hyderabad, India
	Reaction Products of Portland Cement Mortar Hardend at Deep Seafloor at a 1900m Depth Tetsu Akitou, Keisuke Takahashi, Toshinori Kimura, Shuhei Nishida UBE Industries, Ltd., Japan	Shear Behavior of Ultra-High Performance Concrete Beams: A Numerical Investigation (on-line) Chandrashekhar Lakavath, S Suriya Prakash Indian Institute of Technology Hyderabad, India
	Physicochemical Damages on Hardened Cement-Based Material at Deep Seafloor Mari Kobayashi, Keisuke Takahashi, Yuichiro Kawabata UBE Industries, Ltd., Japan	Effect of Carbonation on Compressive Strength Development of High-Slag Mortars Marie Joshua Tapas, Ann Yan, Paul Thomas, Vute Sirivivatnanon University of Technology Sydney, Australia
Hybrid Cement: One of the Traditional Cement of Tomorrow (on-line) Pithchai Pandian Sivakumar, Elke Gruyaert, Stijn Matthys and Nele De Belie Ghent University, Belgium	Transport Properties of 3D Printed Concrete Elements Manu K. Mohan, A.V. Rahul, Geert De Schutter and Kim Van Tittelboom Ghent University, Belgium	
12:30-14:00	Lunch	

# ICRCS Technical Program

Day2 Thursday 8 Sept.		
Room	G	A
14:00-16:00	<b>Simulation Models for Deterioration 1</b> <b>Chair: Takashi Yamamoto (Kyoto University, Japan)</b>	<b>Design for Durability, LCM 1</b> <b>Chair: Naoko Tsuchiya (National Institute for Land and Infrastructure Management, Japan)</b>
	<b>(Keynote)</b> Simulation Model for Deterioration of Reinforced Concrete Members Subjected to High Cycle Load Chikako Fujiyama Yokohama National University, Japan	Life Cycle Assessment (LCA) and Life Cycle Cost (LCC) Analysis as Crucial Part of a Holistic Approach to the Design of Structures with Advanced Cement Based Materials Davide di Summa, Matteo Parpanesi, Liberato Ferrara, Nele De Belie Ghent University, Belgium
	Full-scale Multi-deterioration Simulations of RC Bridge Decks Exposed to De-icing Salt Supply and Moving Load Fatigue Yuya Takahashi, Takeru Sudo The University of Tokyo, Japan	Examining Impacts of Variability in Constituent Production and Service Life Time on Environmental Performance of Alkali Activated Concretes <b>(on-line)</b> Anastasija Komkova, Tamara Janey Chidiac, John Provis, Guillaume Habert ETH Zurich, Switzerland
	Validation of the Mesoscale MPC-RBSM Simulation System to Estimate the Corrosion Level of Reinforcement in Concrete from Surface Crack Information Suhas S Joshi, Vikas Singh Kuntal, Kumar Avadh, Kohei Nagai The University of Tokyo, Japan	Combining LCA and Service Lifetime Modelling to Predict Impacts of Repair and Rehabilitation for Steel Reinforced Alkali Activated Concrete Tamara Janey Chidiac, Anastasija Komkova, Guillaume Habert, John Provis The University of Sheffield, The United Kingdom
	Analytical Study on Flexural Load-Carrying Behavior of a PC-T Girder Subjected to PC Tendons Rupture at Bent-up Sections Atsushi Hattori, Masaki Kitagishi, Eiji Yoshida, Hirota Kawano Kyoto University, Japan	Production Management - The Trade-off between Technical and Economic Aspects of Innovative Materials such as Textile Reinforced Concrete Kira Heins, Goetzdem Dittel, Mohit Raina, Saurabh Gaikwad, Remea Ost, Thomas Gries Aachen University, Germany
	A Probabilistic Model Framework for Microbiologically Induced Corrosion of Concrete Sewers <b>(on-line)</b> Min Wu, Tian Wang Aarhus University, Denmark	Life Cycle Assessment of Cement Production - Study of Variations through Case Studies Anusha S. Basavaraj, Ravindra Gettu Indian Institute of Technology Madras, India
	Estimation of Early Age Compressive Strength of Concrete Using Maturity Method Rajib Kumar Biswas, Takahiro Saito, Ryutaro Matsumoto, Shohei Kawaguchi Okumura Corporation, Japan	The First Large-Scale Renewal Work on the Japanese Expressway Tetsuhiro Sasamori, Naoyuki Kojima, Hisatomo Matuszaki, Takashi Oshio, Takehumi Niitsu, Kazunari Yamamoto, Takayuki Iwaki, Shigeki Tomiyama, Manabu Enomoto, Makoto Ishikawa, Yusuke Hosoi Metropolitan Expressway Company Limited, Japan
Analytical Comparison of the Flexural Behavior of Reinforced Concrete Beams with Different Cross-section Dimensions Affected by Corrosion <b>(on-line)</b> N. Vega, J. Moreno, P. Castro Borges, J. Varela Facultad de Ingeniería, Universidad Autónoma de Yucatán, Mérida, México	Assessing the Reliability of Reinforced Concrete Structures under Coupled Degradation Effect of Crack Development and Corrosion Tiao Wang, Chunhe Li, Yao Luan, Tetsuya Ishida, Xiaoxu Huang The University of Tokyo, Japan	
16:00-16:30	Coffee	
16:30-18:00	<b>Simulation Models for Deterioration 2</b> <b>Chair: Shingo Asamoto (Saitama University, Japan)</b>	<b>Design for Durability, LCM 2</b> <b>Chair: Kenichiro Nakarai (Hiroshima University, Japan)</b>
	Modeling the Pozzolanic Reaction of Silica Fume and Metakaolin Satya Medepalli, Yuqian Zheng, Wang Tiao, Tetsuya Ishida The University of Tokyo, Japan	<b>(Keynote)</b> A Systematic Strategy for Durability Design Regarding Desirable Settings of Fraction Defective for Characteristic Value of Reinforced Concrete Properties Toshiharu Kishi The University of Tokyo, Japan
	Numerical Simulation of Chloride Transport Property in Unsaturated Alkali-activated Slag Zhiyuan Xu, Marijana Serdar, Guang Ye Delft University of Technology, Netherlands	<b>(Keynote)</b> Chloride Ingress Models: TC 270-CIM and beyond <b>(on-line)</b> Eddie Koenders The Technical University of Darmstadt, Germany
	Simulation and Visualization of Carbonation of Concrete based upon New Advanced Numerical Methods Considering Sustainability of Reinforced Concrete Buildings <b>(on-line)</b> Toshio Fukushima Fukushima Institute 2 for Building Environment and Materials, Japan	Creating a North American Durability Design Code <b>(on-line)</b> Robert Douglas Hooton, Lawrence Sutter University of Toronto, Canada
	A Reactive-transport Framework to Model Carbonation Behaviours of a Hardened Cement <b>(on-line)</b> Zengliang Yue, Yuvaraj Dhandapani, John L. Provis, Susan A. Bernal University of Leeds, United Kingdom	Study on the Relationship between Physical Service Life and Environmental Load in Reinforced Concrete Buildings Koichi Matsuzawa, Tadatsugu Kage, Naoko Tsuchiya Building Research Institute, Japan
Coupling CO <sub>2</sub> (g) Diffusion and Geochemistry for the Carbonation of Cement Paste Siventhirarajah Krishnya, Kirushnapillai Kopitha, Yuya Yoda, Ryoma Kitagaki, Yogarajah Elakneswaran Hokkaido University, Japan		
19:30-21:30	Conference dinner at Hotel Okura Kyoto	

# ICRCS Technical Program

Day2 Thursday 8 Sept.		
Room	B	C
8:00-10:00	<b>Monitoring 3</b> <b>Chair: Tomoki Shiotani (Kyoto University, Japan)</b>	<b>Repair, Retrofitting and Restoration 1</b> <b>Chair: Atsushi Hattori (Kyoto University, Japan)</b>
	<b>(Keynote)</b> Pushing the limits of acoustic emission for the benefit of construction materials Dimitrios G. Aggelis Vrije Universiteit Brussel, Belgium	Drying Shrinkage Characteristic of Cementitious Material Combined with Polyurethane Tokio Sampei, Shingo Asamoto, Keisuke Takahashi Saitama University, Japan
	<b>(Keynote)</b> Re-consideration of Monitoring for A Variety of Roles of Infrastructures Tomoki Shiotani Kyoto University, Japan	A Study on the Biomineralization Mechanism in Self Healing Concrete Using Bacteria Immobilized in Lightweight Aggregate <b>(on-line)</b> Nguyen Ngoc Tri Huynh, Imamoto Kei-ichi, Kiyohara Chizuru Ho Chi Minh City University of Technology, Vietnam
	Bending Monitoring of TRC Sandwich Beams by Means of Multimodal NDTs Nicolas Ospitia, Ali Pourkazemi, Eleni Tsangouri, Johan H. Stiens and Dimitrios G. Aggelis Vrije Universiteit Brussel, Belgium	Influence of Self-Healing Induced by Bacteria-Based Self-Healing Precursors on the Chloride Penetration Resistance of Cracked Mortar Specimens Emanuele Rossi, Rahul Roy, Oguzhan Copuroglu, Henk M. Jonkers Delft University of Technology, The Netherlands
	A Cost-effective Method to Measure Delayed Deformations of Building Materials Ahmad Fathi, João M. Pereira, Graça Vasconcelos, Miguel Azenha University of Minho, Portugal	Influence of Moisture Content and Cracks of Mortar on Corrosion of Mortar Coating Steel Hiroshi Hamada, Takahiko Amino, Hidenori Hamada TOA Corporation, Japan
	Various Characteristics of Cross-sectional Repair Materials using the New Latex <b>(on-line)</b> Kazuaki Nishimura and Hironobu Nishi, Ayuko Ishikawa, Toshihiko Kanda, Fujio Ishimaru, Takeshi Iyoda FLOWRIC Co.,Ltd., Japan	
10:00-10:30	Coffee	
10:30-12:30	<b>Nondestructive Inspection 1</b> <b>Chair: Isamu Yoshitake (Yamaguchi University, Japan)</b>	<b>Repair, Retrofitting and Restoration 2</b> <b>Chair: Katsufumi Hashimoto (Hokkaido University, Japan)</b>
	Field Test on The Wide-range Ultrasonic Testing (WUT) to Assess Grouting Condition in Post-tension Prestressed Concrete Yoshino Sako, Takanori Kinoshita, Kuniharu Fukushima, Mikio Hara and Isamu Yoshitake Yamaguchi University, Japan	Autogenous Self-Healing of Concrete: Experimental Design and Test Methods - A Review Daniel Lahmann, Carola Edvardsen, Sylvia Kessler COWI, Denmark
	Damage Assessment of Reinforced Concrete Deck Utilizing Elastic Wave Measurements Kazuo Watabe, Hidefumi Takamine, Takashi Usui, Yuki Ueda, Keisuke Ueno Toshiba Corporation, Japan	Screening of Agents for Self-Healing Concrete Exposed to Freeze-Thaw Cycles with De-Icing Salts Vanessa Giaretton Cappellesso, Tim Van Mullem, Elke Gruyaert, Kim Van Tittelboom, Nele De Belie Ghent University, Belgium / KU Leuven, Belgium
	Experimental Study on Void Detectivity Using the Neutron Backscatter Measurement Device <b>(on-line)</b> Mineki Kozu, Shigeki Seko and Taichi Ikenaga NIPPON SHARYO, Co., Ltd., Japan	Preliminary Insights into the Coupling of Qualitative and Quantitative Tests for Self-Healing of Mortars Franco Grosso Giordano, Dulce Valdez Madrid, Nico Boon, Veerle Cnudde, Nele De Ghent University, Belgium
	Application of Non-invasive Polarization Resistance Method to Specimens with Deep Cover Concrete Toshinori Kanemitsu, Shinichi Satoh, and Satoshi Takaya Central Research Institute of Electric Power Industry, Japan	Preliminary Investigation of the Long-Term Deformations of Self-Healing Concrete with Superabsorbent Polymers Tim Van Mullem, Robby Caspeelee, Nele De Belie Ghent University, Belgium
	Shrinkage and Settlement Assessment of Fresh Concrete Using Digital Image Correlation (DIC) and Acoustic Emission (AE) Eleni Korda, Eleni Tsangouri, Didier Snoeck, Geert De Schutter, Dimitrios G. Aggelis Vrije Universiteit Brussel, Belgium	Autogenous Healing Performance of Fly Ash-Based Alkali Activated Lightweight Aggregate in Mortar Puput Risdanareni, Jianyun Wang, Nele De Belie Ghent University, Belgium
	Influence of 3D Printed Vascular Networks in Self-Healing Cementitious Materials on Water Absorption Studied Via Neutron Imaging Yasmina Shields, Yasmina Shields, Philip Van den Heede, Yury Villagran Zaccardi, Pavel Trtik, Nele De Belie, Kim Van Tittelboom Ghent University, Belgium	
	Evolutions in 3D Textile Reinforced Cement Composites (TRCs) M. El Kadi, C. Gielis, D. Van Hemelrijck, H. Rahier and T. Tysmans Vrije Universiteit Brussel (VUB), Department Mechanics of Materials and Constructions, Belgium	
12:30-14:00	Lunch	

# ICRCS Technical Program

Day2 Thursday 8 Sept.		
Room	B	C
14:00-16:00	<b>Nondestructive Inspection 2</b> <b>Chair: Katsufumi Hashimoto (Hokkaido University, Japan)</b>	<b>Repair, Retrofitting and Restoration 3</b> <b>Chair: Satoshi Takaya (Kyoto University, Japan)</b>
	Validation of Method for Estimating Extent of Segregation in Concrete Bridge Slabs Using Ground Penetrating Radar and Deep Learning Shinichiro Kita, Nobuaki Sakurai, Akito Sakurai, Tsuyoshi Iidoi, and Ichiro Iwaki Nippon Steel Engineering Co., Ltd. Japan	Service Life of Galvanic Anodes in Reinforced Concrete Systems ( <a href="#">on-line</a> ) Karthikeyan Manickam, Deepak K. Kamde, Radhakrishna G. Pillai Indian Institute of Technology Madras, India
	Characterizing porosity and Component Change of Hardened Cement Paste Deteriorated by Leaching with Non-destructive Integrated CT-XRD method Yingyao Tan, Anna Tomo, Takafumi Sugiyama and Katsufumi Hashimoto Hokkaido University, Japan	Corrosion Control on Re-bar in Concrete Structure with Low Current Density ( <a href="#">on-line</a> ) Motoki Onoda, Ryu Shinozaki, Koichi Kobayashi Credence Co., Japan
	Influence of Rib Pattern of Deformed Bars on Bond Performance of Reinforced Concrete ( <a href="#">on-line</a> ) Ayumu Yasue, Kensuke Kobayashi, Reoma Yamamoto, Junho Kim, Yuji, Miyazu, Yuhei Nishio, Satoshi Morooka, Tomohisa Mukai, Manabu Kanematsu Tokyo University of Science, Japan	Establishing a Chloride Protection System for Subway Rectangular Tunnels near Tidal Rivers Yoshihiko Mutou, Norihiko Ogura Metro Rail Facilities Co.Ltd., Japan
	AE Analysis on Bonding Behavior of Pre-stressed CFRTP Reinforcing Bar and Concrete Interface Katsufumi Hashimoto, Tomoki Shiotani, Hisafumi Asaue and Shinichi Miyazato Hokkaido University, Japan	Numerical Analysis of Prestressed Concrete Girders Strengthened by External Tendons Kojiro Shigeta, Shigehiko Saito, Kennosuke Sato University of Yamanashi, Japan
	Fundamental Characterization of Concrete Using Gd2O2S as Aggregates Kohichi Nakayama, Koichi Nittoh, Ryoma Kitagaki, Takashi Kamiyama, Hirota Sato Toshiba Energy Systems & Solutions Corporation, Japan	A Collision Test of Developed Precast Concrete Barriers for Replacing on Existing RC Slabs Yosuke Ishihara, Koyo Hikichi, Takeshi Maki, Hiroshi Mutsuyoshi Metropolitan Expressway Co.Ltd., Japan
	Study on Bond Performance of Reinforced Concrete with Hot-dip Galvanized Rebar by Neutron Diffraction ( <a href="#">on-line</a> ) Kensuke Kobayashi, Yuhei Nishio, Takuro Kawasaki, Harjo Stefanus, Hiroshi Suzuki, Satoshi Morooka and Manabu Kanematsu Tokyo University of Science, Japan	
Confocal Raman Imaging for Phase Identification of Municipal Solid Waste Incineration (MSWI) Ashes Hamza Samouh, Vikram Kumar, and Nishant Garg University of Illinois at Urbana-Champaign, United states of America		
16:00-16:30	Coffee	
16:30-18:00	<b>Nondestructive Inspection 3</b> <b>Chair: Jose Roberto Tenorio Filho (Ghent University, Belgium)</b>	<b>Repair, Retrofitting and Restoration 4</b> <b>Chair: Kei-ichi Imamoto (Tokyo University of Science, Japan)</b>
	A Fundamental Study on Judgement Method of Reinforcement Corrosion Cracks by Analyses of Sound Spectrum Using Machine Learning Tomohiro Fukui and Ichiro Kuroda National Defense Academy, Japan	Flexural Behaviour of RC beams Strengthened with Hybrid CFRP laminates, U-Wrap Fabric and Anchorages Rahul Reddy Morthala, Balla Taraka Malleswara Rao, S. Suriya Prakash Indian Institute of Technology, India
	Monitoring of Reinforced Concrete Beams Subjected to Corrosion and Loading Using Elastic Wave-based Methods of NDT Artur Sagradyan and Norihiko Ogura Core Institute of Technology Inc. Japan	Study on Proportion Plan of Polypropylene Fiber-Reinforced Concrete Used for Thin Prestressed Member Ze Song, Kei-ichi Imamoto, Chizuru Kiyohara, Benyou Yang Tokyo University of Science, Japan
	Automated In-Concrete Sensors for Maturity Monitoring Based on Temperature and Electrical Resistivity: Preliminary Results José Roberto Tenório Filho, Yawar Abbas and Stijn Matthys Ghent University, Belgium	Research on Basic Properties of Hybrid Prestressed Concrete Benyou Yang, Kei-ichi Imamoto, Chizuru Kiyohara Tokyo University of Science, Japan
	Initial Developments towards a Unified Protocol of Mortar Preparation for Testing within The SUBLime MSCA Doctoral Network ( <a href="#">on-line</a> ) M. Pułtorak, V.Grigořev, N. De Belie, P.B. Lourenço and M. Azenha University of Minho, Portugal	Outdoor Exposure Test for Verification of Repair Effective of RC Components in A Severe Salt-Affected Environment Yuto Shibui, Hitoshi Hamasaki, Kei-ichi Imamoto General Building Research Corporation of Japan
Analyzing Electromagnetic and Geometric Characterization of Building Insulation Materials by Means of Transient Radar Method (TRM) Ali Pourkazemi, Nicolas Ospitia, Salar Tayebi, Olsi Kamami, Kato Thibaut and Johan H. Stiens Vrije University Brussels (VUB), Belgium		
19:30-21:30	Conference dinner at Hotel Okura Kyoto	

# ICRCS Technical Program

Day3 Friday 9 Sept.		
Room	Science Hall	A
8:00-10:00	<b>Special Session on Surface Coating 1</b> <b>Chair: Koichi Matsuzawa (Building Research Institute, Japan)</b>	<b>Design for Durability, Geopolymers 1</b> <b>Chair: Marijana Serdar (University of Zagreb, Croatia)</b>
	<b>(Keynote)</b> Ageing Mechanisms and Long-Term Observation of Silane Impregnation on Concrete <b>(on-line)</b> Kefei Li, Le Li, Xin Zhang and Zhihong Fan Tsinghua University, China	The Coupling Effects of Curing Temperature and Additional Activators on the Strength Development of Ca(OH) <sub>2</sub> Activated Blast Furnace Slag <b>(on-line)</b> Qi Zhai, Kiyofumi Kurumisawa Hokkaido University, Japan
	Protection of Concrete Surface from the Canadian Standard, ICRI, and ACI Perspectives Claudiane Ouellet-Plamondon Universite du Quebec, Canada	Effect of Accelerators on Diffusivity and Drying Shrinkage of BFS composite <b>(on-line)</b> Kiyofumi Kurumisawa Hokkaido University, Japan
	Improvement on Deterioration Prediction about Surface Coating for RC Structures against Chloride Penetration Chihiro Yoshii and Mitsuyasu Iwanami Tokyo Institute of Technology, Japan	Degradation of Alkali-Activated Slag Paste in Underwater Condition Chen Liu, Zhenming Li, Xuhui Liang, Yun Chen, Guang Ye Delft University of Technology, The Netherlands
	Conservation of Heritage Concrete Structures by Surface Treatments based on Ammonium Phosphate: Preliminary Results <b>(on-line)</b> Hélène Pasco, Sonia Naidu, Enrico Sassoni University of Bologna, Italy	Evaluation of Network Depolymerization and Gel Precipitation in Alkali-Activated Synthetic Glasses Luiz Miranda de Lima, John Provis, Guang Ye Delft University of Technology, The Netherlands
	Influence of Bio-Coating on the Properties of Alkali-Silica Reaction Cracked Mortar <b>(on-line)</b> Yao Luan and Hiroshi Mutsuyoshi Saitama University, Japan	Alkali Metal Acetate-Activated Ground Granulated Blast Furnace Slag Cements <b>(on-line)</b> Yuyan Huang, Alastair T.M. Marsh, Sam Adu-Amankwah, Susan A. Bernal University of Leeds, United Kingdom
		Long-Term Performance of Alkali-Activated Slag Concrete with Glass Wool <b>(on-line)</b> Zhenming Li, Hu Shi, Chen Liu, Xuhui Liang, Hua Dong, Irving Alfredo Flores Beltran, Shizhe Zhang, Guang Ye Delft University of Technology, The Netherlands
10:00-10:30	Coffee	
10:30-12:00	<b>Special Session on Surface Coating 2</b> <b>Chair: Claudiane Ouellet-Plamondon (Universite du Quebec, Canada)</b>	<b>Design for Durability, Geopolymers 2</b> <b>Chair: Tetsuya Ishida (The University of Tokyo, Japan)</b>
	Durability Enhancement of OPC-based Mortars via the Deposition of Novel Inorganic Phosphate Coatings <b>(on-line)</b> Sonia Naidu and Shiyu Zou Saint-Gobain Research Paris, France	Resistance to Salt Penetration of Concrete Completely Manufactured with Blast Furnace Slag Junyi Chen, Keiichi Imamoto, Chizuru Kiyohara Tokyo University of Science, Japan
	Examination of Reforming Effect of Silicate Type Surface Penetrants on Carbonated Mortar <b>(on-line)</b> Keita Shimamura, Takuya Kondou and Katsunori Yokoi National Institute of Technology, Kochi College, Japan	Quantitative Description of the Effect of Surface Area of Precursors on Reaction Kinetics of Alkali-Activated Slag <b>(on-line)</b> Abdelrahman Hamdan, Taehwan Kim, Ailar Hajimohammadi University of New South Wales, Australia
	Carbonation Progress Evaluation Method for Concrete with Finishing Material by Hybrid Air Permeability Test in Existing Structures Tatsuhiro Murai, Kei-ichi Imamoto, Chizuru Kiyohara, Takanori Kawamoto and Hiromasa Ando Tokyo University of Science, Japan	Durability Performance of Slag-Based Alkali-Activated Concretes of Different Compressive Strength Class Olivera Bukvic, Guang Ye, Marijana Serdar University of Zagreb, Croatia
	Evaluating the Carbonation Rate of Concrete with Finishing Materials based on a Composite Method of Air-permeability Tests Takeshi Kato, Junji Yamasaki, Kei-ichi Imamoto and Chizuru Kiyohara Asanuma Corporation, Japan	Investigating the Retarding Effect of CAC Additions in Alkali-Activation of Blast-Furnace Slag Based Binders <b>(on-line)</b> Laura Stefanini, Brant Walkley, John Lloyd Provis University of Sheffield, United Kingdom
		Influence of Slag on Durability of Calcium Aluminate Cement Concrete Alma-Dina Basic, Marijana Serdar, Mikanovic Ingrid, Gunther Walenta University of Zagreb, Croatia
	Phase Composition of Calcium Aluminate Cement-Slag System Josipa Skocibusic Pejic, Marijana Serdar, Ingrid Mikanovic, Gunther Walenta University of Zagreb, Croatia	
12:00-12:10	Moving	
12:10-12:30	<b>Closing (Bldg#1 Science hall)</b> <b>Student poster award presented by Professor Ishida</b> <b>Presentation of RYC by Dr. Magda Posani</b> <b>Closing address</b>	
12:30-14:00	Lunch	
14:00-17:00	Technical visit	

# ICRCS Technical Program

Day3 Friday 9 Sept.		
Room	B	C
8:00-10:00	<b>Condition Assessment 1</b> <b>Chair: Yuya Takahashi (The University of Tokyo, Japan)</b>	<b>Regeneration Approaches, Recycled Aggregate</b> <b>Chair: Dosho Yasuhiro (Meijo University, Japan)</b>
	3D Structural Characterization and Performance Assessment of Lime-cement Mortars During Salt Damage Dulce Valdez Madrid, Nele De Belie, Veerle Cnudde Ghent University, Belgium	Mitigating the Negative Effect of Adhered Mortar in Recycled Concrete Aggregate for Roller Compacted Concrete Pavements A. Anjana, M.Selvam, Surender Singh Indian Institute of Technology Madras, India
	A Systematic Investigation on the Structural Condition of Concrete Sewer Pipes (on-line) R.A. Luimes, I.C. Scheperboer, F.A.M. Rooyackers, A.S.J. Suiker, E. Bosco, F.H.L.R. Clemens Eindhoven University of Technology, The Netherlands	Sustainability of Ultra-High Performance Concrete Containing Recycled Aggregates (R-UHPC) Boosted by Its Self-healing Capacity (on-line) Niranjan Prabhu K, Davide di Summa, Matteo Parpanesi, Estefania Cuenca Asensio, Ruben P. Borg, Nele De Belie, Liberato Ferrara Politecnico di Milano, Italy
	Condition Assessment and Modelling of Damaged Tubular Steel Columns using 3D Digital Image Correlation (on-line) Prithvi Sangani, Smita Singh, Anil Agarwal Indian Institute of Technology Hyderabad, India	Effect of Carbonation on the Sorptivity of Concrete Made with GGBFS-based Hybrid Binder and Recycled Aggregates Juan M. Etcheverry, Yury Villagran-Zaccardi, Nele De Belie Ghent University, Belgium
	Parametric Study on Mechanical Behaviour of W14 Type Fastening System and Damage of Concrete Sleepers using FE Modelling (on-line) Maja Bniček, Mario Uroš University of Zagreb, Croatia	Influence of Replacement Ratio of Recycled Coarse Aggregate on Compressive Strength and Drying Shrinkage of Concrete Ryo Yamauchi, Susumu Yoshida, Akinori Shimata Civil Engineering Research Institute for Cold Region, Japan
	Evaluation of Train Load Based on Measurement of deflection on Existing Prestressed Concrete Girders in High-Speed Railway Keisuke Fukuta, Kenichi Kuribayashi, Yuzuru Hamada, Hidenori Morikawa JR west japan Consultants Company, Japan	Beneficiation of Waste Concrete for Recycling Using Concentrated Solar Energy Rohit Prajapati, Ravindra Gettu, Surender Singh, B.K. Jayasimha Rathod Indian Institute of Technology Madras, India
	Ultimate Strength Analysis of RC Dapped-end Beams Takeru Kanazawa, Kohei Nagai, Koji Matsumoto, Tomohisa Kamada Hokkaido University, Japan	Performance Evaluation and Mix Proportion Design of Concrete Using Low-quality Recycled Aggregate in Vietnam (Part 1: Performance of Fresh and Hardened Concrete Using Low-quality Recycled Aggregate) Nguyen Van Huynh, Dosho Yasuhiro, Nguyen Anh Duc, Nguyen Thanh Sang Meijo University, Japan
	Numerical Studies Shear Strength of Reinforced Concrete Column with Various Wing Walls (on-line) Yutaka Matsumoto Kurume Institute of Technology, Japan	Performance Evaluation and Mixing Proportion Design of Concrete Using Low-quality Recycled Aggregate in Vietnam (Part 2: Performance Evaluation and Mix Proportion Design of Concrete Using Low-quality Recycled Aggregate in Vietnam) Nguyen Anh Duc, Dosho Yasuhiro, Nguyen Van Huynh, Nguyen Thanh Sang Meijo University, Japan
Bond Behavior of Hot-dip Galvanized Steel Rebar Hongbok Choe, Hideyuki Kinugasa, Manabu Kanematsu Tokyo University of Science, Japan		
10:00-10:30	Coffee	
10:30-12:00	<b>Condition Assessment 2</b> <b>Chair: Hitoshi Hamasaki (Shibaura Institute of Technology)</b>	
	Case Study on the Application of PDCA Cycle for the Maintenance of Provincial Concrete Bridges in Pakistan Azam Amir, Ludmila S. Carneiro, Michael Henry Shibaura Institute of Technology, Japan	
	Review on Maintenance Priority Judgement Based on Performance Evolution of A Nonstructural Member Yasuhiro Dosho Meijo University, Japan	
	Study on Estimation of Aging RC Structures for Dwellings by Visual Examination Naoko Tsuchiya, Naoki Mishima, Kiyofumi Nakada, Koichi Matsuzawa, Tadatsugu Kage, Hiroyuki Tanano, Michihiko Abe Ministry of Land Infrastructure and Tourism, Japan	
	Fundamental Study on Deterioration Characteristics of CLTs due to Termite Damage Gaku Hamasaki, Kei-ichi Imamoto, Chizuru Kiyohara Tokyo University of Science, Japan	
	Condition Assessment of Fire-Damaged Concrete using the Color Reactions of Phenolphthalein Solutions Toru Kinose, Natsuki Yoshida, Daiki Atarashi, Kei-ichi Imamoto General Building Research Corporation of Japan, Japan	
Carbonation Resistance of Concrete Containing Modified Fly Ash in Actual Environment (on-line) Yoshitada Akiyoshi, Akihiro Kodama, Toshihiro Otani, Takayuki Furuzono, Yoshitaki Sato Oita University, Japan		
12:00-12:10	Moving	
12:10-12:30	<b>Closing (Bldg#1 Science hall)</b> <b>Student poster award presented by Professor Ishida</b> <b>Presentation of RYC by Dr. Magda Posani</b> <b>Closing address</b>	
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