Concrete for the Modern Age
Developments in materials and process
Military Technological College, Sultanate of Oman, 20-22 November 2017
www.concreteconference.org.uk
With a wide-ranging review of the latest developments in concrete technology largely missing from the global conference circuit, the ICT is promoting its first major international event on these lines, located in the Middle East at the heart of a construction boom.

**Keynote speakers** including Dr James Aldred, formerly Independent Verifier for the Burj Khalifa; Professor Johann Plank, Head of Construction Chemistry, TU Munich, Professor Viktor Mechtcherine, Head of TU Dresden, Dr Atef Badr, Head of Civil Engineering, MTC, and Professor P A M Basheer, Head of School of Civil Engineering, University of Leeds will address such diverse topics as high performance concrete in the Gulf; the prospects for admixtures; the application of 3D printing; the role of concrete in the development of Oman and performance-based specifications. **ICT President Raman Mangabhai** will introduce the Institute of Concrete Technology, and **ICT Vice President, Rob Lewis** will deliver the ACI Ambassador Lecture.

Nearly 50 original papers are being presented on seven themes, with participants from over 20 countries.

**Conference dinner** will be held on the second day with Middle Eastern food and entertainment. Bring your camera!

**Delegates** will have the opportunity to network with their peers, keep up to date with current trends and learn about up and coming techniques.

**Approved by ICT for 15 hours Continuous Professional Development.**
### Provisional Programme

#### 19 November 2017

**Arrival and Registration**

#### 20 November 2017

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8.30</td>
<td>Registration - Tea &amp; Coffee</td>
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<tr>
<td>9.00</td>
<td><strong>Welcome and Introduction</strong></td>
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<tr>
<td></td>
<td>Dr Atef Badr, Head of Civil Engineering, MTC</td>
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<td>Royal Airforce Commander / Matar bin Ali bin Matar Al-Obaidani Chairman, Board of Directors – MTC</td>
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<td>Professor Eugene Coyle, Dean MTC</td>
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<td></td>
<td>Professor Michael Grantham, Past President of The Institute of Concrete Technology</td>
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#### OPENING SESSION KEYNOTE

**9.30 The Role of Cement & Concrete in the Development of Oman: Past, Present & Future**

- A. Badr, M. Al-Jahdhami, S. Ioannou, A. Al-Abri, A. Al-Saadi, M. Al- Barrami, Military Technological College, Muscat, Oman
- A. Woodfine, Readymix Muscat & Premix LLC, LafargeHolcim GCC Cluster

#### ADMIXTURES

**10.00 Keynote lecture; Concrete Admixtures – Current status and perspectives for the future**

- Professor Dr. Johann Plank, Technische Universität München, Germany

**10.30 Influence of internal curing admixture on hardening process of mortars with ground granulated blast-furnace slag (GGBS)**

- Fernando C.R. Almeida, Agnieszka J. Klemm, Glasgow Caledonian University, UK

**10.50 Advanced analysis of an engineered solution for high permissible limits of clay in contaminated sands used in concrete**

- Pierre Estephane and Klaus-Alexander Rieder, GCP Applied Technologies, Dubai and USA

**11.10 Discussion**

**11.20 Tea/Coffee**

**11.50 Flow enhancers for high strength concrete of low water-to-cement ratio (< 0.4)**

- Manuel Ilg, Professor Dr. Johann Plank, Technische Universität München, Germany

**12.10 The contribution of admixtures to durable concrete structures**

- David Bowerman, BASF, UAE

**12.30 Cement hydration studied under zero gravity conditions**

- Markus Meier, Lei Lei, Prof. Dr. Johann Plank, Technische Universität München, Germany

**12.50 Discussion**

**13.00 Lunch**

#### APPLICATION RELATED

**14.00 Keynote lecture; 3D Concrete printing: Potential applications in construction**

- Professor Viktor Mechtcherine and Venkatesh Naidu Nerella, Technische Universität Dresden, Germany

**14.30 The potential of UHPFRC panels to minimise damage from rocket propelled grenade attacks**

- Marios Soutsos, Desmond Robinson, Jian-Fei Chen, and Ali Rafeet, Queen’s University Belfast, UK

**14.50 The impact of elevated high temperature on properties of self-compacting concrete**

- Abbas S. A. Al-Ameeri, Safa M. N. Ahmed, University of Babylon, Iraq

**15.10 Self compacting grout to produce two stage concrete**

- Hakim S. Abdelgader, University of Tripoli, Libya

**15.30 The development of fibre reinforced sprayed concrete for rock slope stabilisation in the Middle East**

- Nick Chittenden, BASF, UAE

**15.50 Discussion**

**16.10 Tea/Coffee**

**16.30 Concremote: Determining Concrete Maturity in Digital Construction**


**16.50 Nano technology for soil stabilization, reducing permeability and improving shear strength of soils in Oman and Middle East**

- Sourabhi Manjrekar and Surendra Manjrekar, Sunanda Speciality Coatings Pvt. Ltd., India

**17.10 Experimenting with Sulphur Polymeric Concrete in Kuwait**

- Saud Al-Otaibi, Anfal Al-Aibani, Suad Al-Bahar, Mohammad Abdulsalam, Kuwait Institute for Scientific Research, Kuwait

**17.30 Discussion**

**17.45 Close of session**

**19.30 Refreshments for Networking**
21 November 2017

**DURABILITY**

09.00  **Keynote lecture; Performance based specifications for durability of concrete structures– Opportunities and Challenges**  
Professor P A M Basheer, University of Leeds, UK  
S Nanukuttan and A E Long, Queen's University Belfast, UK  
John McCarter, Heriot Watt University, UK

09.30  **Understanding chemical attack and permeation properties of concrete – key to achieving durability of concrete structures in the Middle East**  
Abu Saleh Mohammad, Pudlo Middle East Building Materials LLC, Dubai

09.50  **The effect of exposure time on leaching from concrete**  
David Law, RMIT University, Australia

10.10  **Less expected concrete deterioration in the water industry**  
Rene Brueckner, Mott MacDonald, UK

10.30  **Fatigue performance of ultra-lightweight cement composite and high strength lightweight concrete**  
KMA Sohel, K Al-Jabri, JYR Liew, M H Zhang, Sultan Qaboos University, Oman, National University of Singapore, Singapore

10.50  **Effects of supplementary cementitious materials on Concrete Durability – Comprehensive Study**  
Khaldoon Slaiai and Redwan Hameed, Saudi Readymix, Kingdom of Saudi Arabia

11.10  **Discussion**

11.20  Tea/Coffee

**MIX DESIGN**

11.50  **Computation method for concrete mix design using simple equations**  
Professor Hakim S. Abdelgader, University of Tripoli, Libya

12.10  **Determination of coefficient of thermal expansion (CTE) of 20MPa mass concrete using granite aggregate**  
Go Chee Siang, Loh&Loh Constructions Sdn Bhd, Malaysia

12.30  **Effect of coarse aggregate size on mechanical properties of concrete**  
Prof Salem Alsanusi Salem, University of Benghazi, Libya

12.50  **Prediction of compressive strength of concrete from early age test results using design of experiments (RSM)**  
Prof Salem Alsanusi, University of Benghazi, Libya

13.10  **Discussion**

13.20  Lunch

14.30  **Introduction to The Institute of Concrete Technology**  
Raman Mangabhai, President of the Institute of Concrete Technology

**SPECIAL CEMENTS & SUPPLEMENTARY MATERIALS**

14.45  **ACI Ambassador - Keynote**  
Microsilica concrete - Optimising durability  
Robert Lewis, El kem Materials, UK, Vice President of the Institute of Concrete Technology

15.30  **A novel process for the production of calcium sulfoaluminate cements: Molten salt synthesis**  
Theodore Hanein, Alan Maries, Magnus Nyberg, Nestor I. Quintero Mora, Mark Tyrie, John L. Provis, Hajime Kinoshita, The University of Sheffield, UK, AMSTaR Consultancy, UK, CEMEX Research Group AG, Switzerland

15.50  **The influence of paste content, water-to-solid ratio and binder blend on compressive strength and workability of ambient temperature cured alkali activated concrete**  
Ali Rafeet, Raffaele Vinai, Wei Sha, Marios Soutsos, Salah College of Technology, Oman, Queen’s University Belfast, UK

16.10  **The performance enhancement of cementitious materials by adding novel nano materials**  
Jaiping Liu, Xin Shu, Lei Li, Cheng Yu, Southeast University and Jiangsu Sobute New Materials Co., Ltd., China

16.30  **Discussion**

16.40  Tea/Coffee

17.00  **Determination of temperature rise and temperature differentials of CEMII/B-V cement for 20MPa mass concrete using adiabatic temperature rise data**  
Go Chee Siang, Loh&Loh Constructions Sdn Bhd, Malaysia

17.20  **Nano modified cements- the future of the world cement industry**  
Marcel Bickbau, Moscow IMET International, Russia

17.40  **Discussion**

18.00  Close of session

19.30  **Pre dinner-reception**

20.00  **Conference dinner with Omani entertainment till late**
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<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>09.00</td>
<td><strong>Keynote; Achieving high performance concrete in the Gulf</strong></td>
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<tr>
<td></td>
<td>Dr James Aldred, AECOM/Concrete Future, and UNSW, Australia</td>
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<tr>
<td>09.30</td>
<td><strong>Water resistant concrete for durable sub-surface structures in the Gulf Region – requirements, possibilities and limitations</strong></td>
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<td>Frank Altmann, BG&amp;E – Materials Technology, Qatar</td>
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<tr>
<td>09.50</td>
<td><strong>Thermal crack control of watertight reinforced concrete structures in the Middle East</strong></td>
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<td>P K Raveendranath, Engineering Innovation Design and Consulting (EIDC) LLC, Oman</td>
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<tr>
<td>10.10</td>
<td><strong>Properties of biological self-healing concretes</strong></td>
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<td></td>
<td>A. Ganiyu and A. Badr, Military Technological College, Muscat, Oman</td>
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<td>W. O. Ajagbe, University of Ibadan, Nigeria</td>
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<td>N. Z. Muhammad, A. Keyvanfar and M. Z. Abd. Majid, Universiti Teknologi Malaysia, Malaysia</td>
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<td>10.30</td>
<td><strong>Durability of Concrete materials</strong></td>
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<td>Shrikant B Kulkarni, UltraTech Cement Ltd, India</td>
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<td>10.50</td>
<td><strong>Need for rational durability specifications for reinforced concrete in the Sultanate of Oman</strong></td>
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<td>G.L.V. Raja, Al Tasnim Cement Products LLC, Oman</td>
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<tr>
<td>11.10</td>
<td><strong>Discussion</strong></td>
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<tr>
<td>11.20</td>
<td>Tea/Coffee</td>
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<tr>
<td>11.50</td>
<td><strong>Structural behavior of reinforced fly ash based geopolymer concrete T-beams</strong></td>
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<td>Tareq S Al-Attar, University of Technology, Iraq</td>
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<td>12.10</td>
<td><strong>Parametric investigation on the shear strength of steel fiber reinforced concrete deep beams using artificial neural networks</strong></td>
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<td>M A Yassir, and M I Khan, King Saud University, Kingdom of Saudi Arabia</td>
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<td>12.30</td>
<td><strong>Shrinkage behaviour of high-performance-fiber-reinforced cement-based composites</strong></td>
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<td>Ahmed Al Ghazali, Christof Schröfl and Viktor Mächter, Technische Universität Dresden, Germany</td>
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<td>12.50</td>
<td><strong>Novel fiber pullout test of fiber reinforced concrete: consistency and repeatability analysis</strong></td>
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<td>M I Khan and M A Yassir, King Saud University, Kingdom of Saudi Arabia</td>
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<td>Lunch</td>
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<td>14.20</td>
<td><strong>Green Sense Concrete</strong></td>
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<td>Daniel Touma, BASF, UAE</td>
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<td>14.40</td>
<td><strong>EcoCrete-Xtreme: Extreme performance of a sustainable concrete</strong></td>
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<td>Wassim I. Mansour and Olafur H. Wallevik, Readymix Abu Dhabi, United Arab Emirates and ICI Rheocenter – Reykjavik University &amp; Innovation Center, Iceland</td>
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<td>15.00</td>
<td><strong>Investigation of the use of rice husk ash as a supplementary cementitious material in concrete: A case study of the Bangladeshi Rice Husks</strong></td>
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<td>Md.Mizanur Rahaman, AKSID(SIKA) Corporation Ltd, Bangladesh</td>
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<td>15.20</td>
<td><strong>New muscat airport terminal: a case study for the versatility of concrete</strong></td>
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<td>Sokrates Ioannou &amp; Atef Badr, Military Technological College, Muscat, Oman</td>
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<td>15.40</td>
<td><strong>Discussion</strong></td>
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<td>15.50</td>
<td><strong>Closing address</strong></td>
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<td></td>
<td>Raman Mangabhai, President of The Institute of Concrete Technology</td>
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<td></td>
<td>Dr Atef Badr, Head of Dept of Civil Engineering – MTC</td>
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<tr>
<td>16.15</td>
<td><strong>Close of Conference</strong></td>
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22 November 2017
Registration Fees

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<tr>
<th></th>
<th>Delegates</th>
<th>Authors</th>
<th>Student/Retired*</th>
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<tr>
<td>One day</td>
<td>£270.00</td>
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<tr>
<td>Two day</td>
<td>£500.00</td>
<td>£460.00</td>
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<tr>
<td>Three day</td>
<td>£650.00</td>
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*Evidence of status will be required in order to qualify for these preferential rates.

Booking for two or three days includes full access to those days’ proceedings, Conference Lunches, and Conference Dinner. Booking for one day includes full access to that day’s proceedings and Conference Lunch only. The Conference Dinner can be added for an additional cost of £50.

For One and Two day registration please contact michael.grantham@concrete-solutions.info

Please note that the registration fee does not include accommodation and all registrations will increase by 10% on 1st October 2017, including any as yet unpaid registrations made before this date.

Registration online at: www.concreteconference.org.uk/register

Accommodation

Accommodation will be available on the MTC campus on the basis of single occupancy, but enquire for alternative arrangements, including shared apartments that could provide cost savings to delegates wishing to share accommodation.

One bedroom flat (Left) and student accommodation (Right) with shared facilities.

MTC can also offer two villas, shown below. Each has 3 bedrooms and will be provided on the basis of maximum 3 sharing. Enquire if this may be of interest.

To reserve a place, please contact:
Khalid.alkalbani@mtc.edu.om; Tel: +968 99329022; Mobile: +968 92778994; or
BadarMohammedSalim.alAbri@mtc.edu.om; Tel: +968 99329374; Mobile: +968 95982083
Muscat International Airport is the only airport serving the city.

It is advisable to take an Airport Taxi to the MTC campus and the cost is approximately 7.0 OR. A shuttle bus service will be available during the conference days, running one/two per hour from nearby hotels.

Sultanate of Oman
Oman, a nation on the Arabian Peninsula, has terrain encompassing desert, riverbed oases and long coastlines on the Arabian Sea, the Sea of Oman and the Arabian Gulf. Wahiba Sands is a region of dunes inhabited by Bedouins. The port capital, Muscat, is home to the massive, contemporary Sultan Qaboos Grand Mosque, and the old waterfront Muttrah quarter, with its labyrinthine souk and busy fish market.

Tourism
Oman is known for its popular tourist attractions. Wadis (valleys) deserts, beaches, and mountains are areas which make Oman unique among its neighbouring Gulf Cooperation Council nations. Jebel Shams is Oman’s tallest mountain, highest point, and is a popular destination for camping. Most of the major malls are located in Muscat. The largest mall in the country is the Muscat City Centre which was built by Majid Futtaim, an Emirati business man. Other popular tourist activities include sand skiing in the desert, mountain climbing, camel racing, and camping.

VISA
Arrangements vary. Delegates should consult with their nearest Omani embassy for visa requirements before travelling.

ICT Cement and Concrete Technology Conference Organising Committee

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The Institute of Concrete Technology
Founded in 1972, The Institute of Concrete Technology (ICT)’s mission is to preserve and promote concrete technology as a recognised engineering discipline and consolidate the professional status of practising concrete technologists. It is the concrete sector’s professional development body, operating internationally, with nearly 500 members in more than 30 countries worldwide. It is an awarding body for qualifications in concrete technology and a facilitator of continuing professional development (CPD) and networking opportunities.

http://ict.concrete.org.uk

Military Technological College, Muscat
The creation of the Military Technological College presents an excellent opportunity for young graduates to embark on a first rate career in engineering and to contribute to one of His Majesty’s (Qaboos bin Al Said) Services as expert technologists at this most exciting time, with advanced technological developments of Oman’s aeronautical, naval and ground forces and of the national infrastructure.

https://www.mtc.edu.om/en/
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