

Concrete for the Modern Age Developments in materials and process

Military Technological College, Sultanate of Oman, 20-22 November 2017
www.concreteconference.org.uk



Military
Technological
College

The Institute
of Concrete
Technology



1st International Conference on
**Cement & Concrete
Technology**

A three day event concerned with developments in cement and concrete technology, and will be of interest to academics, students, manufacturers, suppliers, engineers and consultants.

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

8.30 *Registration- Tea & Coffee*

9.00 **Welcome and Introduction**

Dr Atef Badr, Head of Civil Engineering, MTC

Royal Airforce Commander / Matar bin Ali bin Matar Al-Obaidani Chairman, Board of Directors – MTC

Professor Eugene Coyle, Dean MTC

Professor Michael Grantham, Past President of The Institute of Concrete Technology

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 **Concremate: Determining Concrete Maturity in Digital Construction**

A. Badr, B Bos and P Fischer, Military Technological College, Muscat, Oman, B/A/S Research & Technology, The Netherlands Doka Muscat LLC, Oman.

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

Sourabh 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*

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 CheeSiang, 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, Elkem 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 Tyrer, 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, Salalah College of Technology, Oman, Queen's University Belfast, UK
- 16.10 The performance enhancement of cementitious materials by adding novel nano materials**
Jiaping 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 CheeSiang, 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

DURABILITY 2

- 09.00 Keynote; Achieving high performance concrete in the Gulf**
Dr James Aldred, AECOM/Concrete Future, and UNSW, Australia
- 09.30 Water resistant concrete for durable sub-surface structures in the Gulf Region – requirements, possibilities and limitations**
Frank Altmann, BG&E – Materials Technology, Qatar
- 09.50 Thermal crack control of watertight reinforced concrete structures in the Middle East**
P K Raveendranath, Engineering Innovation Design and Consulting (EIDC) LLC, Oman
- 10.10 Properties of biological self-healing concretes**
A. Ganiyu and A. Badr, Military Technological College, Muscat, Oman
W. O. Ajagbe, University of Ibadan, Nigeria
N. Z. Muhammad, A. Keyvanfar and M. Z. Abd. Majid, Universiti Teknologi Malaysia, Malaysia
- 10.30 Durability of Concrete materials**
Shrikant B Kulkarni, UltraTech Cement Ltd, India
- 10.50 Need for rational durability specifications for reinforced concrete in the Sultanate of Oman**
G.L.V. Raja, Al Tasnim Cement Products LLC, Oman
- 11.10 Discussion**
11.20 Tea/Coffee

REINFORCED CONCRETE

- 11.50 Structural behavior of reinforced fly ash based geopolymer concrete T-beams**
Tareq S Al-Attar, University of Technology, Iraq
- 12.10 Parametric investigation on the shear strength of steel fiber reinforced concrete deep beams using artificial neural networks**
M A Yassir, and M I Khan, King Saud University, Kingdom of Saudi Arabia
- 12.30 Shrinkage behaviour of high-performance-fiber-reinforced cement-based composites**
Ahmed Al Ghazali, Christof Schröfl and Viktor Mechtcherine, Technische Universität Dresden, Germany
- 12.50 Novel fiber pullout test of fiber reinforced concrete: consistency and repeatability analysis**
M I Khan and M A Yassir, King Saud University, Kingdom of Saudi Arabia
- 13.10 Discussion**
13.20 Lunch

SUSTAINABILITY

- 14.20 Green Sense Concrete**
Daniel Touma, BASF, UAE
- 14.40 EcoCrete-Xtreme: Extreme performance of a sustainable concrete**
Wassim I. Mansour and Olafur H. Wallevik, Readymix Abu Dhabi, United Arab Emirates and ICI Rheocenter – Reykjavik University & Innovation Center, Iceland
- 15.00 Investigation of the use of rice husk ash as a supplementary cementitious material in concrete: A case study of the Bangladeshi Rice Husks**
Md.Mizanur Rahman, AKSID(SIKA) Corporation Ltd, Bangladesh
- 15.20 New muscat airport terminal: a case study for the versatility of concrete**
Sokrates Ioannou & Atef Badr, Military Technological College, Muscat, Oman
- 15.40 Discussion**
- 15.50 Closing address**
Raman Mangabhai, President of The Institute of Concrete Technology
Dr Atef Badr, Head of Dept of Civil Engineering – MTC
- 16.15 Close of Conference**

Registration Fees

	Delegates	Authors	Student/Retired*
One day	£270.00	£250.00	£90.00
Two day	£500.00	£460.00	£155.00
Three day	£650.00	£600.00	£200.00

*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:

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TRAVEL

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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