Welcome

by Mark Tyrer, Chairman of Cementitious Materials Group

This fourth edition of the Cementitious Materials Group Newsletter is likely to be the last to be edited by Yanfei Yue. I would like to extend the thanks of all our readers to Yanfei for her efforts in bringing this newsletter to life. Our circulation is now around 2,500 and I am pleased to report that we continue to receive very positive comments from readers. If you have something you wish to share with your colleagues, please drop a line to cmg.iom3.newsletter@gmail.com. We are always pleased to receive book reviews and notices of meeting and job postings.

Last month saw the second meeting in the multi-institutional Young Researchers’ Forum, a meeting report on which is printed later. This meeting is intended to give university researchers and new appointees in industry an opportunity to meet each other and speak to a friendly audience of their peers. It is a low-cost meeting, organised by one institution, but promoted by several. The Institute of Concrete Technology organised this year’s event which was hosted by University College, London.

Our next major conference is the 34th Cement and Concrete Science Symposium, to be held in Sheffield from the 14th to the 16th of September. It is immediately followed (on the 17th) by a workshop on Waste Cementation and attendees are encouraged to register jointly for the two events. The deadline for abstracts is fast approaching and ~200 words should be sent to ccs2014@sheffield.ac.uk before the end of the month. Enquiries about the CCS meeting and workshop can be made to the host, Professor John Provis Tel: +44 (0) 114 222 5490 or to the e-mail address above.

Mark Tyrer

Scientific Imaging Competition at the Royal Microscopical Society “MMC2014”

The biennial RMS photographic competition is due to be held in July and entries are invited in all fields of microscopy and all subjects. The competition is divided into six categories; Electron Microscopy – Life Science, Electron Microscopy – Materials Science, Light Microscopy – Life Science, Light Microscopy – Materials Science, Scanning Probe Microscopy and Video. The images will be displayed at the Microscience Microscopy Congress (1st-3rd July, Manchester Central) and prize winners will be notified by the 23rd May.

The deadline for submission of your entries is: 22nd April

Do you have a notable micrograph which should be seen by a wider audience? If so, please consider entering it in the competition.

More details from: Scientific Imaging Competition, Royal Microscopical Society, 37-38 St Clements, Oxford, OX4 1AJ, UK. Tel: +44 (0)1865 254761, imagingcomp@rms.org.uk.
Cement firms to face more competition after inquiry

The UK's cement market is set to see greater competition following changes ordered by the Competition Commission.

The Commission spent two years studying the market amid fears existing firms were concentrating on preserving their market share and failing to compete. It said the lack of competition was costing cement users £30m a year.

The Commission has told one of the existing firms, Lafarge Tarmac, to sell one of its cement plants to enable a new firm to compete in the industry. The dominant cement firms are Lafarge Tarmac, Cemex, and Hanson. These three were joined a year ago by new entrant, HCM. These, and another company, Aggregate Industries, which does not produce cement, make up the five main suppliers of heavy building materials in the UK, which include aggregates, cement and ready-mix concrete. Lafarge Tarmac will be required to choose between selling either its Cauldon, Staffordshire or its Tunstead, Derbyshire cement plants.

Lafarge's chief executive, Cyrille Ragoucy, said he was "disappointed" by the decision, adding it was "not reasonable or proportionate". "The Commission has based its remedies on a partial and historic picture of the market. Its analysis of industry profitability is flawed, grossly overestimating the returns made," he said. "It has also failed to take into account the new business environment that has been established by our divestments - only 12 months ago - to create a new competitor, and the entry of new importers into the market."

‘Essential product’

The Commission also ordered changes in the supply of another heavy building material, ground granulated blast furnace slag (GGBS), which is a partial substitute for and input into cement. It has ordered Hanson to sell one of its GGBS production facilities. It says the inefficient market for this material has led to losses for buyers of a further £15m-£20m a year.

Professor Martin Cave, the chairman of the inquiry, said: "Cement is an essential product for the construction and building sectors and the amount of such work that is funded by the public purse only underlines the importance of ensuring that customers get better value for money."

From: http://www.bbc.co.uk/news/business-25725490

A report of the Concrete Show at the NEC:
Cement cartel investigations – Authorities will keep looking

Cement cartels (or at least cases of cartel-like behaviour) have reared their ugly heads this week... again. In two different markets, Australia and Brazil, competition authorities are at various stages of taking major action against large proportions of their respective cement industries. In another, Europe, it is the cement producers that are taking on the authorities.

This week, the Australian Federal Court has found five producers guilty of agreeing anti-competitive contracts with regard to fly-ash supply contracts from power stations in the state of Victoria. Only Cement Australia Holdings was not accused. Penalties are to be determined at a later date – watch this space.

As drastic as the Australian situation may be, it is Brazil's anti-trust authority Cade that looks set to make the biggest 'splash' in a cement industry in 2014. On 13 March 2014 it was reported that a US$1.32bn fine, split over six cement producers, has been put on hold after the producers disputed a ruling that would see them lose an average 24% of their cement assets each. So big is this fine that it actually eclipses the US$1.1bn fine seen in India in 2012. In light of the amount of influence that they look set to lose, it now looks extremely likely that the producers will appeal. This sets the scene for indeterminably long waits for legal proceedings and more evidence to be collected. Whatever happens in Brazil, there will be major implications for its increasingly-concentrated cement market.

Elsewhere, in a strange inversion of the normal situation, in Europe it is the cement producers that are taking action. This week the European Court has rejected an appeal from eight major cement producers including Holcim, HeidelbergCement and Cemex subsidiaries with respect to the European Commission's handling of an anti-cartel investigation that began in 2008. That case saw anti-trust investigations start in 2010. Proceedings continue.

As stated previously in this column, cartel-like behaviour is not necessarily indicative of a formal cartel. There are innumerable factors that make every case different and, in each, proving actual collusion is very hard indeed. In the cement industry however, it appears that 'convictions' in cartel cases are easier to spot than in other sectors.

"The first thing for any new competition regulator is to go out and find the cement cartel. My experience of this subject is, it is always there, somewhere," wrote Richard Whish, a Professor of Law at King's College London in 2001. "The only countries in which I had been unable to find the cement cartel is where there is a national state-owned monopoly for cement."

The authorities will keep looking and producers, guilty or not, will continue to wait for their call.

UK and Ireland: skills shortages and construction statistics

CBI calls for STEM career encouragement

The Confederation of British Industry (CBI) has urged the UK government to make careers in science, technology, engineering and maths (STEM) more attractive and easier to access. In its new report, entitled ‘Engineering our Future’, the CBI calls on the government to take action to prevent a skills shortage in key industrial sectors. Proposed measures include reducing tuition fees for certain STEM courses, training and retraining initiatives to ensure that technicians possess the necessary skills, and gender diversity targets to improve the number of women opting to study STEM subjects.

“Growth and jobs in the future will depend on the UK having a workforce that can exploit new technologies and discoveries. The growing skills vacuum is threatening the recovery, as demand from firms is outstripping supply,” stated Katja Hall, CBI Chief Policy Director.

“Highly-skilled workers are essential for our growth sectors and it will be those young people with science and maths who will go on to become the engineers and new tech entrepreneurs of tomorrow.”

“The Government must explore if it’s possible to reduce the costs of some of these courses and create a one-year crossover qualification at 18 for those who turned away from science and maths after GCSEs, but now want to take a related degree. But it is increasingly clear that the really problematic shortages are at skilled technician level. We do have to play a long game on skills, creating more apprenticeships, but we also need policies for the short-term, including retraining existing workers with in-demand skills in key sectors,” added Hall.

Irish construction industry

Ireland’s Ulster Bank has released its Construction Purchasing Managers’ Index® (PMI®) for February 2014. Key highlights from the report are detailed below.

- At 56.2 the PMI® index for February remained relatively in line with January 2014 (56.4). February was the sixth consecutive month to display an increase in activity.
- New orders increased for the eighth month in a row, aided by improved market conditions.
- The rate of job creation also grew. Staffing levels have risen every month since September 2013.
- The residential sector continued to experience a sharp expansion in activity, although the rate of growth slowed down. Commercial activity also increased but activity in the civil engineering sector declined.
- The PMI® readings for housing, commercial and civil engineering activity in February came in at 57.5, 55.5 and 40.9, respectively.

“Looking ahead, near-term prospects for the sector are supported by further growth in new orders as firms reported that better market conditions are generating stronger pipelines of new business. Beyond the near-term, firms remain strongly optimistic about the sector’s 12-month ahead outlook as sentiment last month remained close to the record high seen in December, buoyed by more positive signs in the wider economy,” said Simon Barry, Chief Economist Republic of Ireland at Ulster Bank.


Asia Cement Corporation seeks to expand production capacity in China

Asia Cement (China) Holdings Corporation, a subsidiary of Taiwan’s Asia Cement Corporation, is looking for merger and acquisition opportunities or strategic alliances in China in order to increase production capacity and improve its competitiveness in the domestic market. The company will focus on small and medium-sized cement producers in various regions of the country.

As part of the company’s expansion strategy, Asia Cement and Asia Cement (China) signed a tactical partnership agreement with Anhui Conch Cement Group and China Conch Venture Holdings Ltd in January 2014. The cement manufacturers agreed to work together to break into the markets in China, Taiwan and other countries, as well as modernise production lines in order to lower costs, increase efficiency and become more environmentally friendly.

Furthermore, Asia Cement (China) is preparing for an increase in demand for cement in the domestic market. A rise in investment in infrastructure, a growing property market and the continued urbanisation of rural areas is expected to boost cement demand in the country. In 2014, the production capacity of Asia Cement (China) is anticipated to increase from the original forecast of 32 million t to 40 million t, as 13 production lines are due to come online this year. Following this, production capacity is expected to reach 50 million t.

Vacancies

The following positions' availability may change with time.

Field Engineer/Field Engineer Trainee
Schlumberger Oilfield UK plc

Wage: £28,500 - £44,000 plus allowances
Hours: Full time
Location: Aberdeen, UK
Duration: Permanent
Pension Details: Pension Available

Please click ‘Apply’ below to submit an application.

The role of a Field Engineer is to plan, run and report the operations in the field environment (onshore and offshore rigs). Depending on the operational segment (Wireline, Cementing, Drilling & Measurement, Well Testing, etc.), you will be exposed to different well site operations.

You will perform and manage specific field operations at the operations base and the well site, which includes: equipment maintenance, job planning, equipment preparation, installation, reception testing and operation of equipment at the well site, well site trouble shooting, rig down of equipment and operational reporting to the client and direct manager.

You will be responsible for managing your crew and appraising their performance. You are also responsible for mentoring junior field engineers. You will have an MEng or BEng degree in an applied Science or Engineering subject (or equivalent qualifications).

Closing Date: Ongoing Milkround recruitment programme for a period of 48 months

To apply online please select the APPLY button below.

Apply

From: http://www.jobs.ac.uk/job/AUJ175/field-engineer-field-engineer-trainee/

Job in Hanson

Hanson Cement is a major producer of cement and ground granulated blast furnace slag (GGBS), a cement replacement in ready-mixed and precast concrete. We are part of Hanson UK, a leading supplier of heavy construction materials and a division of HeidelbergCement Group.

Technical Services Manager

The successful applicant will manage the technical function within MQP and responsibilities will include the following:

- Define and implement MQP’s Technical Strategy
- Leading the technical department to support MQP’s strategy
- Management of the Quality and Environmental Management Systems across the business to ensure we produce the highest quality of products
- Leading the development of new products to respond to the needs of our customers
- Ensuring close control of all production processes, particularly asphalt, to optimise the sustainable use of all raw materials
- Provide quality and technical input to MQP’s senior management team including compliance with the Construction Products Regulation
- Management of customer complaints process with root cause analysis
- Management of Health and Safety across the technical team
- Representing MQP on Industry Technical Forums

The ideal candidate will have technical management experience within the asphalt and aggregate sector.

Location: Cliffe Hill
Closing Date: 10/04/14
Hiring Manager: Hadley, Adrian
Hiring Manager Contact Number: 07854 432292

Plant Supervisor

Applicants should be reliable, have an organised but flexible approach, and be adaptable enough to be able to respond to the challenging circumstances of our day to day business, with the aim of exceeding our customers expectations.

Previous experience in the concrete industry would be advantageous but not essential as full training will be given. Excellent communication skills are essential.

Ideally the candidate should like locally.
We are an equal opportunities employer.

Location: Melton Mowbray
Closing Date: 31/03/14
Hiring Manager: Holt, Darren
Hiring Manager Contact Number: 07813 460394

From: http://ssl.rullionsolutions.com/hnsc_prod/guest/vc_css_job_search?
**Academic Vacancy**

**Marie Curie Early Stage Researcher**
**Deep Embedment Shear Strengthening of Concrete Structures using CFRP**

**University of Bath** - Architecture and Civil Engineering

We are seeking to appoint an Early Stage Researcher (ESR) in the field of Carbon Fibre-Reinforced Polymer (CFRP) shear strengthening of concrete structures using the Bath-invented technique of deep embedment. This 3-year fixed-term PhD post forms part of the EU-funded Marie Curie Initial Training Network ‘ENDURE’. The network partnership includes 14 top universities and 10 industrial partners from 11 European countries. More information about the MC ITN endure can be found at [www.endure-itn.eu](http://www.endure-itn.eu).

The three-year PhD research project will involve fundamental experimental work and analytical research, investigating the shear strengthening of existing major concrete beam-and-slab structures. The ESR will register for a PhD at the University of Bath, fees for which will be funded by the grant, and will also be required to spend a period of secondment at one of the Partner Institutions to receive additional training. This is very likely to be at the University of Patras in Greece.

As an ESR you will participate in network-wide events and will become familiar with a wide range of research methods and industry related issues. This position is subject to the Marie Curie Fellowships terms and conditions. Candidates applying for this position must (at the time of recruitment) be in the first four years (full-time equivalent research experience) of their research careers and not yet have a doctoral degree. This is measured from the date when they obtained the degree which would formally entitle them to embark on a doctorate, either in the country in which the degree was obtained or in the country in which the research training is provided. The candidate must have:

1) Obtained a MEng, MSc, or equivalent degree, preferably (but not limited to) civil engineering, materials science, physics, computer science or chemistry
2) Familiarity with at least one programming language (preferably C)
3) Interest, passion, and motivation to acquire advanced programming skills and to develop, write, and use, simulation codes for materials science and civil engineering
4) interest, passion, and motivation to understand problems related to mechanics and chemistry, and creativity to formulate original models and solutions
5) excellent English language and communication skills

Desirable:
1) Knowledge or willingness to learn the Finite Element Method, the Discrete Element Method, Molecular Dynamics, Monte Carlo, Kinetic Monte Carlo, Density Functional Theory, Phase Field Method
2) Familiarity with or willingness to learn Linux, object oriented programming, visualization and rendering tools
3) Knowledge of or willingness to learn Statistical Mechanics, Physical Chemistry, and Kinetic Theory

You must complete the University’s online postgraduate application form selecting ‘PhD School of Civil Engineering and Geosciences - Civil Engineering (Structural)’ as the programme of study. Once you have selected the programme, please insert the studentship/partnership reference number C1651.

Please also send a CV and covering letter, quoting the reference number C1651, to Dr Masoero: enrico.masoero@newcastle.ac.uk.

From: [http://www.jobs.ac.uk/job/AIF394/marie-curie-early-stage-researcher/](http://www.jobs.ac.uk/job/AIF394/marie-curie-early-stage-researcher/)

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**PhD Opportunity: Nano-engineering Structure and Mechanical Properties of Building Materials**

**Newcastle University - School of Civil Engineering and Geosciences**

Nanotechnology offers unprecedented opportunities to make building materials stronger and more sustainable. This project will apply nanotechnology to improve cementitious materials, with extension to other materials. The disordered structure of cement conceals the nanoscale processes that control its mechanics and ageing. These processes cannot be fully understood from experiments, hence computational physics and simulations become pivotal.

The student will use and develop simulation codes (e.g. LAMMPS) to study the nano-particulate structure of cement. Additional challenges are multi-scale modelling and modelling ageing.

International collaboration with MIT (USA), ETH Zurich (Switzerland), and EHU (Spain).

Required: The candidate must have:

1) Obtained a MEng, MSc, or equivalent degree, preferably (but not limited to) civil engineering, materials science, physics, computer science or chemistry
2) Familiarity with at least one programming language (preferably C)
3) Interest, passion, and motivation to acquire advanced programming skills and to develop, write, and use, simulation codes for materials science and civil engineering
4) interest, passion, and motivation to understand problems related to mechanics and chemistry, and creativity to formulate original models and solutions
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Desirable:
1) Knowledge or willingness to learn the Finite Element Method, the Discrete Element Method, Molecular Dynamics, Monte Carlo, Kinetic Monte Carlo, Density Functional Theory, Phase Field Method
2) Familiarity with or willingness to learn Linux, object oriented programming, visualization and rendering tools
3) Knowledge of or willingness to learn Statistical Mechanics, Physical Chemistry, and Kinetic Theory

You must complete the University’s online postgraduate application form selecting ‘PhD School of Civil Engineering and Geosciences - Civil Engineering (Structural)’ as the programme of study. Once you have selected the programme, please insert the studentship/partnership reference number C1651.

Please also send a CV and covering letter, quoting the reference number C1651, to Dr Masoero: enrico.masoero@newcastle.ac.uk.

Events diary

Structural Faults and Repair—2014
July 8-10, 2014
Imperial College London, UK
http://www.structuralfaultsandrepair.com/

The 4th International Conference on Durability of Concrete Structures
July 24-26, 2014
Purdue University, West Lafayette, IN, USA

The 10th International Symposium on Innovation & Utilization of High-Performance Concrete
Sep 16-18, 2014
Beijing, China
www.hpc-2014.com

The 5th International Conference on Concrete Repair
Sep 1-3, 2014
Queen’s University, Belfast, Northern Ireland, UK
http://www.concrete-solutions.info/

The 34th Annual Cement and Concrete Science Conference
Sep 14-16, 2014
University of Sheffield, UK
http://www.shef.ac.uk/materials/ccs2014

Young Researchers’ Forum II:
Construction Materials (ICT, IOM3 & AIM)
19 Feb 2014
University College London

See you then……
The second Young Researchers’ Forum in Construction Materials was held at University College, London on the 19th February and was by all measures, a resounding success. This meeting spans all construction materials and is co-promoted by several of the learned societies, working in co-operation, with one taking the role of lead organiser. This year’s event was steered very ably by the Institute of Concrete Technology whose Events Director, Raman Mangabhai did sterling work organising the meeting. Seventy participants attended, including representatives of eight countries overseas, heard fourteen high quality presentations on a wide range of related topics. The poster session was well-received and a number of the 26 poster authors had an opportunity to present their ideas verbally before the breaks.

Delegates were welcomed by Professor Anthony Finkelstein, Dean of Engineering at UCL and the event was chaired by the ICT President, Peter Hewlett, who announced the Prize Winners as all of equal merit, as follows:

**Institute of Materials Minerals and Mining Prize (oral presentation):** Julia Herterich, University of Leeds, for her paper on: Microstructure and phase assemblage of low-clinker cements during the early stages of carbonation

**Institute of Concrete Technology Prize (oral presentation):** Yanfei Yue, from University College, London for her paper on: Characterisation of Friedel's salt in cementitious materials with Raman spectroscopy.

**Society of Chemical Industry Prize (oral presentation):** Chrysoula Litina, from the University of Cambridge, for her paper on: Development of self-healing cementitious composites with microencapsulated healing agents

**Institute of Concrete Technology Prize (poster presentation):** Haolin Su, from the University of Birmingham for the poster: Physical and mechanical properties of concrete containing single and mixed sized rubber particles with and without pre-treatment.

**Institute of Concrete Technology Prize (poster presentation):** Sukina Alzyound, from Imperial College, London for the poster: Effect of spacers on concrete transport properties and chloride penetration.

The organisers would like to add their congratulations to the prize winners, to thank all the authors for their efforts and to our sponsors: The David Ball Group, Grace, Isolearn, Sika and Zwick-Roell for their support.

M. Tyrer  
Chairman, Cementitious Materials Group, IOM3
The 34th Annual Cement and Concrete Science Conference

Sep 14-16, 2014
University of Sheffield, UK

Invitation

We cordially invite you to join us for the 34th Annual Cement and Concrete Science Conference, hosted by the Department of Materials Science and Engineering, The University of Sheffield. The conference will provide an opportunity for academic researchers, students and industrialists to meet and discuss their research on topics including:

- Hydration and microstructure of Portland cement and blended cements
- Alternative binders and their application as cements and concretes
- Durability testing of concretes based on Portland and non-Portland cements
- Structural and thermal performance of concrete materials
- Waste re-use in cements and concretes
- Cementitious materials for nuclear waste applications
- Sustainability issues related to cement and concrete production and utilisation

Call for Abstracts

Abstracts (up to 200 words) are now being accepted for both oral and poster presentations; these should be submitted by email: ccs2014@sheffield.ac.uk. The deadline for submission of abstracts has been extended to Thursday 17 April 2014. Short written papers (between 2-4 pages) will be required for all oral and poster presentations, prepared according to the template which will be provided on the conference website, with a submission deadline of Monday 14 July 2014.

Sponsorship opportunities

Sponsorship opportunities are available, including: proceedings and handout material, conference sessions, conference dinner, welcome reception, lunches, coffee breaks, and student presentation/poster prizes. Please contact the conference organisers at ccs2014@sheffield.ac.uk for detailed information.
The Concrete Society is about to publish the second edition of its guide to the analysis of hardened concrete “TR32”. The Society of Chemical Industry are marking the event with a one-day meeting to be held at the IOM3.

The chemical analysis one-day meeting is a forum to discuss developments of the revision of BS 1881:Part 124 dealing with the chemical analysis of concrete and the renewal of TR32 - interpretation of the analytical results. The meeting will address the challenges faced in analyzing concrete with various additions, e.g. ggbs, pfa and limestone fillers. By bringing together analysts, materials scientists, consulting engineers and people responsible for building, car park and road maintenance gives a forum for test specifications and test result interpretations.

Nanocem is a consortium of academic and industrial partners, all interested in fundamental research into the nano and micro-scale of the phenomena that govern the performance of cements and concrete. Nanocem was founded in 2004, and has grown to a network of 23 academic and 11 industry partners. This unique cooperation between the industry and the academic community has lead to identify common issues and has helped map the research needs for sustainable cement and concrete.

During the last ten years, Nanocem has funded fourteen Core Projects, long term fundamental research projects carried out by two or more partners. The academic partners have shared the results of seventy Partner Projects. There are some 120 academic researchers in the team who, between them, are in the process of managing some 60 PhD and PostDoctoral research projects in related areas. Two Marie Curie Actions Training Network projects - NANOCEM “Fundamental understanding of cementitious materials for improved chemical physical and aesthetic performance” and TRANSCEND “Understanding TRANsport for Concrete which is Eco friendly iNnovative and Durable” - funded within European Framework Programmes 6 and 7 have been awarded to subgroups of Nanocem.
**Self-introduction**

Dr Richard Ball is a Lecturer in the Department of Architecture and Civil Engineering in the University of Bath. His research is primarily in the area of low carbon building materials, specialising in lime based materials, nano-materials and photocatalytic coatings.

Richard graduated with a degree in Materials Science and Engineering from the University of Bath in 1997. He obtained his PhD in 2000, also from Bath, which investigated the failure mechanisms in valve regulated lead/acid batteries.

As a postdoctoral researcher he developed novel composite ceramic electrolytes for solid oxide fuel cells. In 2002 he joined the Interface Analysis Centre at the University of Bristol.

His expertise lies in the application of spectroscopic and electron optical techniques to a range of construction materials to understand and improve performance. He has managed a number of research council and industry funded projects in this area. Richard is a fellow of the Institute of Materials, Minerals and Mining, secretary of the West of England Metals and Materials Association (WEMMA) and a committee member of the Cementitious Materials Group. In 2013 he received the Institute’s Outstanding Service Award.

**Main field of interest**

Richard’s research interests are focused on microstructure/macrostructure property relationships, setting reactions, degradation processes and water transport mechanisms in lime based binders.

He is principal investigator on the EPSRC research grants ‘An Electrochemical Approach to Study Carbonation of Novel Lime Based Materials’ and ‘Experimentally verified atomistic modelling of lime in construction materials’.

He has received funding from the Royal Society to investigate photocatalytic coatings for the built environment and also English Heritage to investigate nanolimes for the conservation of stone buildings in the UK.

Funding from Royal Academy of Engineering and the British Council sponsored UKIERI is promoting collaboration with MANIT (Bhopal), IIT Delhi and JNV University, Jodhpur in the areas of energy harvesting, building monitoring, dye sensitised solar cells, coatings and surface treatments for the built environment.

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**Mr. Manuel Nuno**

Manuel Nuno is a PhD candidate in the Department of Architecture and Civil Engineering in the University of Bath studying the use of photocatalyst for pollution remediation in cities. Manuel graduated with a MChem from the University of Zaragoza in 2010 and a MSc in Green Chemistry from the University of Zaragoza in collaboration with York University in 2011. Late in 2011 he joined to the Civil Engineering department at Univeristy of Bath to start his PhD program.

His PhD is focused in the use of titanium dioxide as photocatalyst and novel techniques to create films able to remove pollutants from the environment. For this purpose, he developed a new instrument based on a mass spectrophotometer able to measure the concentration of hazardous gases. Also, he works with electron optical techniques to characterize the surface of those coatings.

Manuel is vice-director of the southwest constituency of the Society of Spanish Researchers in the UK since 2013.
More information on the Cement and Concrete Group, with a comprehensive links page, can be found at:
http://www.iom3.org/CMC

International materials, minerals & mining organisations
http://www.iom3.org/content/linkmsai

Venue Hire

The Institute offers a range of venue hire options at both its headquarters in London’s West End and its new state-of-the-art centre in Grantham.

The Boilerhouse has been transformed by IOM3 with the use of cutting-edge materials into one of the most striking buildings outside London. Located 5 minutes from the A1, the venue features unique spaces, offering different facilities for a wide range of uses including meetings, workshops, conferences and exhibitions.

See the Boiler house website for full details of rooms, rates and capacities.

1 Carlton House Terrace offers a range of rooms suitable for board meetings for a dozen people, right up to dinners, conferences and receptions accommodating up to 120.

Full room layouts, capacities and rates.

Disclaimer

This newsletter is a compilation of items sent by subscribers or obtained from reliable sources. It is assumed that the information sources are accurate, and neither Editorial Board nor the IOM3 bear responsibility for the accuracy of this information.

“Experience is not interesting till it begins to repeat itself, in fact, till it does that, it hardly is experience.”

- Elizabeth Bowen
Advertorial

Construction Materials Reference book
(2nd Edition)

The construction industry embraces many types of construction for, housing; infrastructure; industrial plant; offshore structures; entertainment structures; energy plant; medical and educational buildings.

Each construction type or application requires the designer and constructor to be skilful in selection and use of our natural and synthetic materials resource. The primary targets will be satisfying the performance need within a budget, but increasingly attention must be given to the environmental impact of a materials use and the possibility of recycling and re-use at end of useful life.

There has been tremendous advancement in the development of new materials and understanding of existing materials, much of this enabled by imaging, analytical and modelling technologies. In parallel there has been considerable development in the technologies of knowledge acquisition, dissemination and uptake. Whilst the ability to rapidly acquire considerable quantities of raw technical information is important, there is also an essential role for consolidated, reviewed information presented in readily digestible form. The Construction Materials Reference Book 2nd is one substantial component of the knowledge resource for materials in construction.

The book comprises 38 materials specific chapters covering Metals; Ceramics; Concrete; Glass; Grouts & Slurries; Gypsum; Stone; Plastics; Timber; Bituminous materials; Geosynthetic fabrics; Cork and Asbestos. Each chapter provides a comprehensive and robust presentation of the materials properties key to its successful use.

The materials knowledge within the book will be equally relevant to those involved with new construction and for those working with understanding and modifying existing construction.

Chapters are written by authors expert in the material who, guided by the editors, worked to a brief covering:

- Sources and manufacturing processes
- Historical applications
- Chemical and Physical properties
- Durability
- Design approaches
- Hazards in use
- Performance in fire
- Sustainability and recycling
- References and bibliography

The editors of the book are Bob Cather [Formerly Director of Arup Materials] and David Doran [formerly a Chief Engineer of George Wimpey]

The Construction Materials Reference Book 2nd published by Routledge, is strongly recommended to all those involved with construction design, construction and research with materials.

Hardcover: 488 pages
Publisher: Routledge; 2 edition (23 July 2013)
Language: English
ISBN-10: 0750663766
The following is a selection of recent literature as selected by the editors, incorporated into the titles are hyperlinks to the papers. The editors take no responsibility for the content or availability of the papers.

**Structures and Buildings (ICE proceedings)**

Chloride penetration in concrete subject to wet/dry cycling: influence of moisture content
Chanakya Arya; Samira Bioubakhsh; Perry Vassie
DOI: 10.1680/stbu.12.00027

**Magazine of Concrete Research**

Development of ultra-high-performance geopolymer concrete
Parukutty S. Ambily; Kapali Ravisankar; Chockkalingam Umarani; Jamboor K. Dattatreya; Nagesh R. Iyer
DOI: 10.1680/macr.13.00057

Combined impacts of polypropylene fibres on workability, strength and permeability of SCC
Xiao-bing He; Bo Yan; Jian-yi Gu; Qiang Shen
DOI: 10.1680/macr.13.00239

X-ray spectromicroscopic study of interactions between NaCl and calcium silicate hydrates
Seyoon Yoon; Juyoung Ha; Sejung Rosie Chae; David A. Kilcoyne; Paulo J. M. Monteiro
DOI: 10.1680/macr.13.00244

Transport properties of ternary concrete mixtures containing natural zeolite with silica fume or fly ash
Babak Ahmadi; Jafar Sobhani; Mohammad Shekarchi; Meysam Najimi
DOI: 10.1680/macr.13.00224

Durability aspects of HVFA-based recycled aggregate concrete
Palaniraj Saravanakumar; Govindasamy Dhinakaran
DOI: 10.1680/macr.13.00200

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