

Registration Payment

A full fee of 700 € will cover the welcome reception, a copy of the proceedings, meals and refreshments served during the symposium, a wine mixer, the Guggenheim Museum tour and the official symposium dinner. Please contact MMS Conferencing for further details.

An optional programme of excursions/sight-seeing for accompanying persons will be offered. Details and payments for these can be made on-line.

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“Contributions outlining novel and potential applications not yet realised or under development”

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MMS Conferencing

Suite 420, 28 Old Brompton Road
London SW7 3SS. ENGLAND, UK
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“The latest advances in Nanoscience and Nanotechnology focusing on Materials and their impact in the Construction Sector”

General Information

- This international and interdisciplinary 2nd Symposium on Nanotechnology in Construction, hosted by **NANOC, LABEIN-Tecnalia**, will focus on the latest achievements in Nanoscience and Nanotechnology associated with Materials for the Construction Sector.
- Over three days, there will be oral contributions from **45 international experts** (from industry, academia and funding agencies) as well as a poster session.
- A full copy of the symposium proceedings (to be published by **RILEM**) is included in the registration fee. The proceedings will include all the oral presentations as well as the posters.
- The official language for all contributions is English.

Audience

The Symposium will be relevant to anyone with experience/expertise in nanotechnology in the field of construction or those who have such experience in other fields and consider applying it to construction. It will also benefit anyone in the field of Construction who wishes to get informed about achievements to-date and about the short and long term prospects for Nanotechnology in construction for strategic planning and investment.

- Staff from building and construction research institutes and academic centres concerned with **construction materials**
- Staff from existing research centres where **Nanotechnology related work** - applied, or potentially applicable to construction - is already carried out
- Personnel involved in advanced **construction practice and industrial R&D**
- Industrial and government **construction research planning and supporting authorities** and organisations

Venue

Euskalduna Palace Conference Centre, Bilbao – Spain:

Lecture Theatre: Room A3 (Abandoibarra Entrance)

For more information on the venue and how to get there:

<http://www.euskalduna.net/>

2nd International Symposium on Nanotechnology in Construction

“From atoms to cities”



Euskalduna Palace

Bilbao - Spain
13th-16th November 2005

Hosted by: **The Centre for Nanomaterials Applications in Construction**
NANOC, LABEIN-Tecnalia



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I shall be accompanied (Yes/No):

How did you hear about this meeting?
.....

Would you like to submit a poster (Yes/No):

Sunday, 13th November 2005

PRE-REGISTRATION & WELCOME RECEPTION

Monday, 14th November 2005

Session 1: Nanotechnology in Construction: Present and future

Opening Paper (TITLE T.B.A.)

A. Porro (NANOC, Labein-Tecnalia, Spain)

European Strategy and Action Plan for Nanotechnology: Focus on the Construction Sector

C. Lesniak (European Commission, Brussels)

Nanomaterials in Construction and Rehabilitation: Contributions and Perspectives of the US National Science Foundation

J. Larsen-Basse (National Science Foundation, USA)

Nanotechnology in Construction: a Roadmap for Development

P. Bartos (University of Paisley, UK)

Session 2: Theoretical Modelling of construction materials from nano to macroscale

Multi-Scale Modelling: The Vehicle for Progress in Fundamental and Practice-Oriented Research

K. van Breugel (Delft University, Netherlands)

Modelling the Nanostructure of C-S-H Gel

H. Jennings (Northwestern University, USA)

T.B.C.

J. Kirkpatrick (University of Illinois, USA)

Thermo-hygro-mechanical Modelling of Safety Critical Concrete Structures

N. Bicanic (University of Glasgow, UK)

Ab-Initio Modelling as a Tool for Understanding C-S-H Gel

J. Sánchez-Dolado (NANOC-Labein, Spain)

Hydration and Microstructure Development of Portland Cement Blended with Blast Furnace Slag

G. Ye (Delft University, Netherlands)

TITLE T.B.A.

A. Ayuela (DIPC, Spain)

Nanoscaled Elementary Components and their Mechanical Interaction in Biological and Man-Made Composite Materials: Bone, Wood, and Concrete

C. Hellmich (VUT, Austria)

T.B.C.

P. Procházka (CTU, Czech Republic)

The Alkali Activation of Fly Ashes: From Macro to Nanoscale

A. Palomo Sánchez (IETCC-CSIC, Spain)

POSTER SESSION & WINE RECEPTION

Tuesday, 15th November 2005

Session 3: Characterisation and measurement of properties of construction materials at micro-to-nano scale

Role of Nano Processes in the Macroscopic Performance of Cementitious Materials

K. Scrivener (EPFL, Switzerland)

Engineering the Nano-and the Meso-Scale Bonding Scheme in Neat and Hybrid Cement Hydrates

H. van Damme (EPSCI, France)

Characterization and Reduction by Nano-Additions of the Effect of Ca-Leaching in Cement Pastes

I. Campillo (NANOC, Labein-Tecnalia, Spain)

Changes of the BET-N₂-Specific Surface Area and Pore Volume during Hydration of Fly Ash Belite Cement

S. Goñi Elizalde (IETCC-CSIC, Spain)

Synthesis of Calcium Silicate Hydrate/Polymer Nanocomposites

L. Raki (IRC-NRC, Canada)

On a Possibility of Structure Identification by Microindentation and Acoustic Emission

J. Kasperkiewicz (IPPT-PAN, Poland)

Nanoindentation Size Effect of Cement Pastes

J. Němeček (CVUT, Czech Republic)

Atomic Force Microscopy for Cementitious Materials

S. Shah (Northwestern University Illinois, USA)

Ultrasonic Force Microscopy: a Technique for Mapping Materials Properties at a Nanometer Scale with Potential Applications to Building Materials

M. T. Cuberes (Castilla-La Mancha University, Spain)

Real-Time Alkali-Silicate Dissolution Experiments with Atomic Force Microscope

I. Casanova (UPC, Barcelona, Spain)

Superplastic Behaviour in Nano Ceramics

A. Domínguez (University of Sevilla, Spain)

New Approaches in Microstructure Analysis of Cementitious Materials from Micro to nano, From 2D to 3D, and from Qualitative to Quantitative Characterization

L. Holzer (EMPA, Switzerland)

Neutron Scattering Methods for Concrete Nanostructure Characterization

R. A. Livingston (FHA, USA)

Nanoscale Measurements of Cement Hydration during the Induction Period

J. Schweitzer (University of Connecticut, USA)

Carbon Nanotubes as a New Reinforcement Material for Modern Cement-Based Binders

T. Kowald (University of Siegen, Germany)

A New Generation of Construction Materials: Carbon Nanotubes Incorporated to Concrete and Polymeric Matrix

J. Grávalos Moreno (NECSO, Spain)

Hybrid Nanocomposites Based on Interpenetrating Organic-Inorganic Polymers as Construction Materials

M. J. López-Tendero (AIDICO, Spain)

Nanotechnology in Construction: Nano Materials and Devices Offer Macro Improvements in Concrete Materials

M. Saafi (Alabama A&M University, USA)

Nano-Concrete Possibilities and Challenges

P. Balaguru (Rutgers University, USA)

GUGGENHEIM TOURS & SYMPOSIUM DINNER

Wednesday, 16th November 2005

Session 4: Nanotechnology for construction material and product development

Ultra High-Performance Concrete: Material Engineering by Nanoindentation Testing and Nanomechanical Analysis

P. Acker (Lafarge, France)

Chemical Nano Design to Engineer Intelligent Concrete Admixtures

R. Magarotto (Degussa, Italy)

Nanotechnology and Photocatalysis in Cementitious Materials

L. Cassar (Italcementi, Italy)

High Strength Micro/Nano Fine Cement

A. García-Luna (GCC, Switzerland)

Current Activities in Construction

K. Zetkova (Synpo, Czech Republic)

Micro-Nano Porous Materials for High Performance Thermal Insulation

D. Quenard (CSTB, France)

Pyrogene Nano-Oxides in Modern Cement Based Composites

A. Korpa (University of Siegen, Germany)

Protective Coatings with Nano Constituent Materials

C. Papakonstantinou (Univ. Massachusetts Dartmouth, USA)

Formation of Nanocrystals of Aft Phase during the Reaction between Alkali-Free Accelerators and Hydrating Cement: a Key Factor for Sprayed Concretes setting and hardening

C. Maltese (Mapei, Italy)

Nanotechnology Opportunities in Residential and Non-Residential Construction

T. H. Wegner (USDA Forest Service, USA)

Nanotechnology and Design

G. Elvin (Univeristy of Illinois, USA)

END OF SYMPOSIUM (@ 13.30)