

List of speakers

C. **Andrade**, Inst. de Ciencias de la Construcción Eduardo Torroja, Spain
A. **Barbat**, Univ. Politècnica de Catalunya, Barcelona, Spain
A. **Bentur**, Israel Institute of Technology, Haifa, Israel
F. **Biondini**, Politecnico di Milano, Italy
F. **Bontempi**, University of Rome "La Sapienza", Rome, Italy
J.R. **Casas**, Univ. Politècnica de Catalunya, Barcelona, Spain
M. **Faber**, Institut f. Baustatik und Konstruktion, Zürich, Switzerland
D.M. **Frangopol**, Lehigh University, Bethlehem, USA
J. **Hurtado**, Univ. Nacional de Colombia, Manizales, Colombia
D.R. **Jones**, University of Cambridge, Cambridge, UK
H. **Mang**, Technische Universität Wien, Wien, Austria
A. **Marí**, Univ. Politècnica de Catalunya, Barcelona, Spain
J. **Mazars**, Institut National Polytechnique de Grenoble, France
G. **Meschke**, Ruhr-Universität Bochum, Germany
X. **Oliver**, Univ. Politècnica de Catalunya, Barcelona, Spain
E. **Oñate**, Univ. Politècnica de Catalunya, Barcelona, Spain
R. **Owen**, University of Swansea, UK
M. **Papadrakakis**, National Technical University of Athens, Greece
G. **Pijaudier-Cabot**, Lab. des Fluides Complexes, UMR, Anglet, France
H. **Reinhardt**, University of Stuttgart, Germany
O.I. **Rio**, Inst. de Ciencias de la Construcción Eduardo Torroja, Spain
P. **Roca**, Univ. Politècnica de Catalunya, Barcelona, Spain
J. **Rodríguez**, DRAGADOS, Madrid, Spain
J. **Rojek**, Inst. of Fundamental Technological Research, Warsaw, Poland
V. **Sánchez Galvez**, Univ. Politècnica de Madrid, Madrid, Spain
B. **Schrefler**, Univ. of Padova, Italy
S. **Shah**, Technological Institute, USA
B. **Suárez**, Univ. Politècnica de Catalunya, Barcelona, Spain
P. **Tanner**, Inst. de Ciencias de la Construcción Eduardo Torroja, Spain
M.Á. **Toledo**, Universidad Politècnica de Madrid, Spain
F. **Tomosawa**, Univ. of Tokyo, Japan
K.J. **Willam**, Dept. of CEAE, Boulder, Colorado, USA

The SEDUREC Project

SEDUREC 2009 is an initiative of the SEDUREC Project on Safety and Durability of Constructions supported by the Consolider Ingenia 2010 Programme of the Ministry of Science and Education of Spain.



An ECCOMAS Thematic Conference

SEDUREC 09 is one of the Thematic Conferences of the European Community in Computational Methods in Applied Sciences (ECCOMAS) www.eccomas.org

Symposium Venue

SEDUREC 2009 will take place at the Technical University of Catalonia (UPC), Jordi Girona 1-3, 08034 Barcelona, Spain. The specific location will be announced in the symposium web page.

Registration Fees

The registration fees, including social events, with early registration applicable if received before **January 15, 2009** are:

	Early	Late
Delegates	300 €	360 €
Students	180 €	215 €

ECCOMAS and IACM members will have a 5% reduction on the delegates fees. The delegate fees will include: Conference Proceedings; Attendance at all scientific sessions; Coffee breaks, reception and banquet

Registration should be performed electronically via the symposium web site.

<http://congress.cimne.upc.es/sedurec09>

Accommodation

Block reservations at preference rates will be arranged by the organizers. For detailed information visit the conference site.

Symposium Secretariat

International Center for Numerical Methods in Engineering (CIMNE)

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Supporting Organisations

- International Center for Numerical Methods in Engineering (CIMNE), Barcelona, Spain
- School of Civil Engineering, Barcelona, Spain
- Universitat Politècnica de Catalunya (UPC), Barcelona, Spain
- Universidad Politècnica de Madrid (UPM), Spain
- European Community on Computational Methods in Applied Sciences (ECCOMAS)
- International Association for Computational Mechanics (IACM)
- Eduardo Torroja Institute for Construction Science, Spain



SEDUREC 2009

International Symposium on Safety and Durability of Materials and Constructions

25-27 February 2009 Barcelona, Spain



<http://congress.cimne.upc.es/sedurec09>

Objectives

SEDUREC 2009 will address the advances in both the computational methods and the experimental techniques for the analysis of the safety and durability of materials and constructions in civil engineering and architecture.

The ability to provide numerical simulations for predicting failure of structures with standard and new composite materials is advancing rapidly. Significant advances have been made in the formulation and implementation of algorithms for static and dynamic problems involving finite strains, complex contact interaction laws, constitutive material behaviours including multi-physics or multi-scale effects, progressive large scale fracturing, etc. Such advances, however, demand a closer interaction between numerical analysts and material scientists in order to produce theoretical models which provide a response in keeping with fundamental material principles and experimental observations. Numerical techniques, and in particular finite element and discrete element methods, are now extensively employed in non-linear structural analysis and very often offer the only means of solution for practical engineering problems. Experimental methodologies for structural analysis on the other hand, are undergoing significant technological changes. The development of wireless sensor networks (WSN) incorporating the advances in networked info-mechanical systems (NIMS) for intelligent control and operation of maintenance systems add new possibilities for enhanced safety and durability of constructions.

SEDUREC 2009 will act as a forum for developers and partitioners in the field of safety and durability of materials and constructions to discuss recent advances in both computational and experimental techniques and identification of future research directions.

Sedurec 2009 Format

SEDUREC 2009 has been organised on a number of keynote lectures delivered by recognized international experts in the field of safety and durability of constructions. A time for questions and debate will be allowed for each presentation.

Organizing Committee

E. Oñate (chairman)

Univ. Politècnica de Catalunya (UPC), Spain

V. Sanchez-Galvez, (co-chairman),

Univ. Politècnica de Madrid (UPM), Spain

C. Andrade

Instituto de Ciencias de la Construcción Eduardo Torroja, Spain

O.I. Rio

Instituto de Ciencias de la Construcción Eduardo Torroja, Spain

Symposium Programme

February, 25th, 2009

14:00 **Welcome Address**

14:30 **SESSION 1**

Jesús Rodríguez, Safety and Durability of Constructions. An industrial perspective.

Roger Owen, Computational modeling of damage in structures and the development of retrofitting strategies

Jacky Mazars, A strategy to model the response of concrete structures under severe loadings: From static loads to impacts

Arnon Bentur, Design for durability of reinforced concrete structures: Concrete cover and field practices

16:30 **Coffee**

17:00 **SESSION 2**

Dan M. Frangopol, Lifetime safety, redundancy and durability of structures under uncertainty

Fabio Biondini, Life-cycle oriented methods for structural analysis and design

Franco Bontempi, Structural robustness: Analysis and design

Antonio Marí, Evaluation of the performance of structures along their service life by nonlinear evolutionary analysis models

19:30 **Welcome Reception**

February, 26th, 2009

9:00 **SESSION 3**

Manolis Papadrakakis, Safety of structures under seismic loading: A critical assessment of the design codes

Jorge Hurtado, Optimized information approaches for structural reliability analysis

Alex Barbat, Evaluation of the seismic risk in urban areas by means of scenarios

Joan Ramon Casas, Safety and durability assessment of existing bridges. European Guidelines

11:00 **Coffee**

11:30 **SESSION 4**

Herbert Mang, Structural safety of concrete tunnel shells subjected to fire load

Carmen Andrade, Modelling of service life of the reinforcement

Jerzy Rojek, Structural failure analysis using the discrete method and combined discrete/finite element method

Günther Meschke, Durability oriented modeling and numerical simulation of concrete and reinforced concrete structures

13:30 **Lunch**

14:30 **SESSION 5**

Kaspar J. Willam, Title to be announced

Miguel Ángel Toledo, Rockfill dam safety in overtopping scenarios

Suru Shah, Some Properties of Highly Dispersed Carbon Nanotube Reinforced Concrete

Gilles Pijaudier-Cabot, Nonlocal damage based failure models and extraction of crack opening for durability analyses.

16 :30 **Coffee**

17:00 **SESSION 6**

Vicente Sánchez Galvez, Numerical simulation of blast effect on reinforced concrete structures

Bernard Schrefler, Simulation of fire resistance and durability of concrete

Xavier Oliver, The continuum strong discontinuity approach: A computational setting to evaluate structural safety and deterioration in front of material failure

Hans Reinhardt, Exposure supported frost testing of concrete

20:30 **Banquet**

February, 27th, 2009

9:00 **SESSION 7**

Peter Tanner, Acceptable level of notional risks associated with structural design.

David R. Jones, Avoiding fatigue failure in large steel structures - Problems of technology transfer between designers and codes, and codes and the scientific literature

Mike Faber, Risk informed decision making concerning engineered facilities

Olga Rio, Instantaneous deformability of actual new concept concrete for tunnels

11:00 **Coffee**

11:30 **SESSION 8**

Pere Roca, Reliability analysis of historical structures

Fuminori Tomosawa, The normative on durability of concrete structures in Japan

Eugenio Oñate and **Benjamín Suárez**, Modelling and simulation of structural failure accounting for fluid-soil-structure interaction

13:30 **Farewell Cocktail**