

INDEX

01

* FOREWORD

02

* AWARDED ICIST RESEARCHERS

03

* COMPLETED PHD THESES

04

* AWARDED RESEARCH PROJECTS
* 15th WORLD CONFERENCE ON EARTHQUAKE ENG.

05

* CALL FOR QREN PROJECTS

PRESIDENT
Jorge de Brito

DIRECTION BOARD
Jorge de Brito
Nuno Silvestre
Alexandre Gonçalves

GROUP COORDINATORS
Earthquake Engineering and Seismology
António Gago

Mechanics, Modelling and Analysis of Structures
Pedro Borges Dinis

Studies on Construction
Fernando Branco

Structural Design and Geotechnics
Eduardo Júlio

Information and Design Support Systems
Francisco Regateiro

Architecture
Manuel Correia Guedes

ADMINISTRATIVE STAFF
Ana Soares Ramos

Foreword

At ICIST, 2012 has been a time for consolidating the growth the center has experienced in recent years. While definitive figures are not yet available, it is now known that 2012 had the best results in publications in leading scientific magazines within our areas of research.

It was also a year with a significant number of completed doctoral theses was completed: this year a total of 15 PhD theses supervised by ICIST members has been completed at Instituto Superior Técnico: nine in Civil Engineering, five in Architecture and one in Territorial Engineering.

The centre was visited in March 2012 by the Scientific Advisory Permanent External Commission (SAPEC), who had the opportunity to meet the board and group coordinators as well as ICIST members and former and current students. The commission also visited our facilities and laboratories.

Jorge de Brito, President of ICIST

Awarded ICIST researchers in 2012

- **João Ramôa Correia** was awarded the **IABSE Prize for Young Researchers** “in recognition of his important research in GFRP structures, leading to significant achievements internationally awarded”.
- **Dinar Camotim** was awarded the **UTL/Santander Totta 2012 Science Prize** in the area of Civil, Mechanical, Naval, Geological and Mining, Aerspatial and Territory, Transports and Biomechanics Engineering.
- **João Almeida** was awarded a **fib Medal of Merit** at the fib Symposium in Stockholm.
- **Fernando Branco** was named “**Personalidade da Engenharia 2012**”, an award given by Construir magazine.
- **Fernando Branco** was elected President of the **European Council of Civil Engineers** (2013-2014).
- **Pedro Natário, Nuno Silvestre, Dinar Camotim** and **Xiao-Ling Zhao** were awarded the **Rik Heslehurst Best Paper Award** in Civil Infrastructure, at the 6th International Composites Conference (ACUN-6) in Melbourne, Australia.



João Correia receiving the IABSE award



Fernando Branco at the European Council of Civil Engineers



Fernando Branco at the Engineering Person of the Year 2012 ceremony organized by Construir magazine



João Almeida at the fib Medal of Merit award ceremony

Completed Doctoral Theses

In 2012 a total of 15 PhD supervised by ICIST members has been completed at IST: nine in Civil Engineering, five in Architecture and one in Territorial Engineering:

- **Carlos Bhatt:** "Seismic Assessment of Existing Buildings Using Nonlinear Static Procedures (NSPs) - A New 3D Pushover Procedure". Supervisor: Rita Bento. Co-supervisor: Rui Moura Pinho. PhD in Civil Engineering, IST. Completed in March 21st.
- **Sara Eloy da Cruz:** "A Transformation Grammar-Based Methodology for Housing Rehabilitation: Meeting Contemporary Functional and ICT Requirements". Supervisor: José Pinto Duarte. Co-supervisor: Maria Isabel Rodrigues Barbosa / Renato Nunes. PhD in Architecture, IST. Completed in April 27th.
- **Rui Duarte Neves:** "A Permeabilidade ao Ar e a Carbonatação do Betão nas Estruturas". Supervisor: Fernando Branco. Co-supervisor: Jorge de Brito. PhD in Civil Engineering, IST. Completed in May 2nd.
- **Manuela Cristina Timóteo Fernandes:** "Um Sistema Ágil na Gestão de Empreitadas pela Óptica da Fiscalização". Supervisor: Francisco Loforte Ribeiro. PhD in Civil Engineering, IST. Completed in May 4th.
- **Mónica Maria Amaral Ferreira:** "Risco Sísmico em Sistemas Urbanos". Supervisor: Carlos Sousa Oliveira. Co-supervisors: Jorge Proença / João Nunes. PhD in Territorial Engineering, IST. Completed in June 26th.
- **Maria Isabel Soares de Albergaria:** "A Casa Nobre em S. Miguel no Período Moderno: Do Período Filipino ao Final do Antigo Regime". Supervisor: João Vieira Caldas. Co-supervisor: Manuel Conde. PhD in Architecture, IST. Completed in July 17th.
- **Rui Carlos Graça e Costa:** "Modelling Nonlinear Fracture Behaviour Using Non-Iterative Numerical Methods". Supervisor: Jorge Alfaiate. Co-supervisor: Daniel Dias-da-Costa. PhD in Civil Engineering, IST. Completed in July 20th.
- **João Manuel Estêvão:** "Efeitos da Ação Sísmica no Comportamento de Edifícios de Betão Armado com Alvenarias de Enchimento". Supervisor: Carlos Sousa Oliveira. PhD in Civil Engineering, IST. Completed in September 14th.
- **Vítor Carvalho Araújo:** "Edifícios de Arquivo - Concepção e Projecto: Permanências e Mutações". Supervisor: Ana Tostões. PhD in Architecture, IST. Completed in September 24th.
- **Helena Alves Meireles:** "Seismic Vulnerability of Pombalino Buildings". Supervisor: Rita Bento. Co-supervisor: Andreas Kappos. PhD in Civil Engineering, IST. Completed in September 28th.
- **Vítor Faria e Sousa:** "Gestão do Risco na Construção - Aplicação a Sistemas de Drenagem Urbana". Supervisor: José Saldanha Matos. Co-supervisors: Fernando Branco / Luís Alves Dias. PhD in Civil Engineering, IST. Completed in November 16th.
- **José Dinis Silvestre:** "Life-Cycle Assessment from Cradle to Cradle of Building Assemblies – Application to External Walls". Supervisor: Jorge de Brito. Co-supervisor: Manuel Pinheiro. PhD in Civil Engineering, IST. Completed in December 17th.
- **Ricardo Finuras de Carvalho:** "Habitat, Habitação Colectiva e Forma Urbana. Construir o Bairro em Portugal, da Cidade-Campo à Cidade-Periférica, 1930-1970". Supervisor: Ana Tostões. PhD in Architecture, IST. Completed in December 17th.
- **Silvia Di Salvatore:** "A Cidade Interrompida, Reflexos da Política Urbanística do Estado Novo no Processo de Planeamento Urbano da Cidade de Alcobaça". Supervisor: Ana Tostões. PhD in Architecture, IST. Completed in December 18th.
- **Pedro Salvado Ferreira:** "Stiffened Compression Flanges of Steel Box Girder Bridges: Postbuckling Behaviour and Ultimate Strength". Supervisor: Francisco Virtuoso. PhD in Civil Engineering, IST. Completed in December 20th.

Awarded Research Projects (Submitted to FCT Funding in 2012)

The last FCT call for projects has been an extremely selective call where many projects classified as “Excellent” or “Outstanding” were not funded. The funded projects led by ICIST researchers or with the participation of ICIST researchers were the following:

PTDC/ECM-COM/1734/2012: EELWAC - PI: José Alexandre Bogas (Instituto Superior Técnico, ICIST). Total budget: 162084€.

REC/GEO-FIQ/0499/2012: C3G- Colaboratório de Geologia, Geodesia e Geofísica - Institution and PI: Universidade da Beira Interior (Rui Fernandes); ICIST leader: João Fonseca. Total budget: 250000€, ICIST: 46230€

PTDC/ECM-EST/2396/2012: Behavior characterization and rehabilitation of EAERTen construction (BE+EARTH) - Institution and PI: Universidade de Aveiro (Humberto Varum); ICIST leader: Luís Guerreiro. Total budget: 116376€, ICIST: 9000€

PTDC/ECM-COM/2911/2012: ROBUST Brick- Uso de alvenarias no aumento da robustez estrutural de edifícios - Institution and PI: FFCT/Universidade Nova de Lisboa (Luís Neves); ICIST leader: Eduardo Júlio. Total budget: 133365€. ICIST:

PTDC/ECM-URB/2564/2012: URBSIS- Avaliação da Vulnerabilidade e Gestão de Risco Sísmico à Escala Urbana - Institution and PI: Universidade Aveiro (Romeu Vicente); ICIST leader: Carlos Sousa Oliveira. Total budget: 101000€, ICIST: 33312€

15th World Conference on Earthquake Engineering

International researchers, engineers and other specialists gathered at the 15th World Conference on Earthquake Engineering (WCEE) in Lisbon between 24th-28th September 2012. The conference addressed earthquake engineering problems from many perspectives, with topics ranging from seismology, structural engineering, lifeline systems and seismic risk assessment, to social and economic issues. The conference had a massive participations with approximately 6000 submitted abstracts.

Several members of ICIST Research Group 1 (Earthquake Engineering and Seismology) were members of the Local Committee and had

important roles in the preparation of WCEE, such as the definition of the Scientific Committee, the Scientific Programme, the establishment of the main objectives of the Conference beyond the presentation of papers and publication of proceedings, the definition of the Keynote and Invited Speakers:

João Azevedo was the president of the Scientific Committee. **Carlos Sousa Oliveira** was the president of the Organising Committee, which included **Luís Guerreiro** as Secretary-General, **João Azevedo** and **Jorge Proença**. **Rita Bento** was member of the Scientific Committee. **Mário Lopes** and **João Fonseca** were members of the Local Advisory Committee.

Call for QREN Project Proposals

In view of the Portuguese economy's current stage of development and its position in the international competitive framework, incentives to corporate investment aim to increase companies' productivity and competitiveness and improve Portugal's specialisation profile. They favour territorial development and the internationalisation of the economy and support investment in the production of goods and services that can be traded or internationalised.

Three incentive systems were set up on the basis of the characteristics of businesses in Portugal and the need for specialised action to deal with the different stages of development and position in the global market:

- **SI I&DT** – incentive system for technology research and development in companies, aimed at intensifying the country's TR&D efforts and creating new knowledge in order to increase companies' competitiveness and foster articulation between them and organisations in the science and technology system (STS);
- **SI Inovação** – innovation incentive system, aimed at promoting innovation in businesses by producing new goods, services and processes that support their progression in the value chain and increase their orientation towards international markets and the stimulation of qualified entrepreneurship and structural investment in new growth potential areas;
- **SI Qualificação PME** – incentive system for the qualification and internationalisation of SMEs, aimed at promoting the competitiveness of SMEs by increasing their productivity, flexibility and response capacity and active presence in the global market.

In the **SI I&DT** incentive system, two project typologies were considered: "Individual Project" (announce 8/SI/2012) and "Project in Co-Promotion" (announce 7/SI/2012).

Priority is given to RD&T projects that reinforce the competitive capacity of companies in the access to foreign markets. The applications will benefit from a specific budget assignment when inserted in the EEC (Estratégia de Eficiência Coletiva – Collective Efficiency Strategy) framework.

Individual projects have the goal of developing new products, processes or systems, or the introduction of significant improvements in products, processes or systems already developed.

The submission of project proposals is continuously open until the end of the QREN programme, with periodic decisions.

The submission period for application submission for Stage I ended on November 15th, 2012; for Stage II it ends on March 12th, 2013 and for Stage III the deadline is August 20th, 2013.

For the case of **Projects in Co-Promotion**, the applications must relate with RD&T projects in partnership between companies or between companies and entities of the SCT (the Portuguese Scientific and Technological System), with leadership by companies.

Activities must be on the fields of industrial research and/or experimental development and lead to the creation of new products, processes or systems, or to the introduction of significant improvements in products, processes or systems already developed. The leading company must guarantee at least 30% of the total eligible project investment.

Similarly to the Individual project case, the reception of applications is continuously open until the end of the QREN programme, with periodic decisions.

The deadlines for the three states are the same as those of individual projects.