

Proposal to Host ICEE 2006 (2005??)

International Conference on Engineering Education- ICEE 2006

The Moving Frontiers of Engineering

Coimbra- Portugal- 2006

**Faculty of Science and Technology
University of Coimbra**

July 2001

International Conference on Engineering Education- ICEE 2006?

The Moving Frontiers of Engineering Coimbra- Portugal- 2006??

The International Conference on Engineering Education has been organised since 1994, having a long history of promoting the understanding of Engineering throughout the world (from Taipei in 1994 to Chicago, Rio de Janeiro, Ostrawa and Prague, Oslo and Manchester in 2002). This strategy results from the understanding that the collaborative approach is essential to modern Engineering Education and a valuable tool to face the forthcoming challenges.

Sponsored by the International Network for Engineering Education & Research (INEER), the ICEE conferences represent an opportunity to exchange and discuss experiences and progresses in Engineering Education, new strategies adopted around the world, evaluation of new methodologies, creating simultaneously the possibility to establish mutually beneficial collaborative efforts.

In a rapid moving World, where Technology and Engineering changed dramatically the ways of living and producing, the New Vague of Information and Knowledge compels us to think how Engineering Education has to cope with changes and to direct the social evolution to a greater Dignity of the Mankind. This is the reason for the *Motu* of the 2006 ICEE: **The Moving Frontiers of Engineering.**

The Conference will benefit from the experience of previous editions , following the same general model, combining technical sessions, comprising plenary lectures by renowned scientists, with workshop panels and technical visits.

The 2006? Conference will take place at Coimbra University in Portugal, which presents a perfect environment to discuss these most important subjects to modern society. In fact, Coimbra University being the oldest University in Portugal and one of the oldest in Europe (more than 700 years old) has been able, over the years, to face new challenges and launch new areas of education, as happened 28 years ago with its Engineering School, perfectly established nowadays in the international panorama, where the Basic Sciences Departments combine with more recent Engineering Departments to produce new generations of modern Engineers. This collaborative effort has got strong roots in the University, being evident for instance if we look back to the XVI century when Pedro Nunes, a mathematician from Coimbra University, applied its basic scientific knowledge to produce an engineering instrument, the *Nonio*, essential to assist the navigators of those days in their discovery of the new worlds.

Proposal to Host ICEE 2006 (2005??)-according to INEER guidelines

- a. Name:** ICEE 2006? (ICEE 2005 in case of necessity for the Network planning)
- b. Emphases:** The following conference themes are suggested although others can be added:
- **Rediscovering the Foundations**
(including such topics as: Basic Sciences, New Competences (e.g. Biology and Environment), Engineering and Humanities, Management and Engineering, Entry Level, etc.)
 - **Global Partnership**
(including such topics as: University/Industry Collaboration, Networking, Students Exchange, North-South Co-operation, etc.)
 - **The Challenges of Research**
(including such topics as: Emerging Engineering Areas, Product Engineering, Ethics, Integration of Students in Research Projects, etc.)
 - **What Degrees for What Jobs?**
(including such topics as: Defining the Levels in Engineering Practice, The Bologna Declaration, Credit Transfer, Appraisal of Engineering Education, Accreditation, etc.)
 - **The Relevance of New Educational Tools**
(including such topics as: Information and Communication Technologies, Multimedia Tools, Distance Learning, Integration of Laboratories, University Libraries, Continuous Learning, etc.).
- c. Dates:**
- For ICEE 2006:
Conference: 1 - 5 August
Workshops: 6 August
Registration and Reception of the Participants: 31 July
INEER Meeting: 31 July
- or, alternatively:
Conference: 8-12 August
Workshops: 13 August
Registration and Reception of the Participants: 7 August
INEER Meeting: 7 August
- For ICEE 2005:
Conference: 31 July - 4 August
Workshops: 5 August
Registration and Reception of the Participants: 30 July
INEER Meeting: 30 July
- or, alternatively:
Conference: 7-11 August
Workshops: 12 August
Registration and Reception of the Participants: 6 August
INEER Meeting: 6 August

Location:

Coimbra, Portugal (University of Coimbra- Faculty of Science and Technology)

d. Proposed Theme:**The Moving Frontiers of Engineering****Venue:**

University of Coimbra, Coimbra, Portugal (the Conference will take place in the Campus of the University of Coimbra).

Dates and Arrangements:

After communication of acceptance, signature of memo of understanding between INEER and the Faculty of Science and Technology - University of Coimbra (FCTUC). Three months after communication of the acceptance of the Conference by the Steering Committee : Presentation of the Draft Report where tentative themes for the workshops, possible Invited Speakers and workshop panels and the draft of the lay-out of the Call for Papers will be suggested.

During 2004- Presentation of Progress Reports to INEER meetings (including ICEE 2004)

January 2005- Mail out of the first Call for Papers. Call for suggestions to specific technical sessions.

Conference Web page ready (preliminary information).

January 2005- Invitations to renowned personalities for the key-note speeches.

July 2005- Mail out of second Call for Papers and distribution of information at the previous ICEE Conference. Presentation of Progress Report at the INEER meeting.

Fall 2005- Presentation of progress report at the Steering Committee Meeting which will take place in Portugal. Visit to Conference facilities.

Workshops:

The purpose of the workshops is mainly directed to forming strategies for international collaboration in subjects such as: faculty and students exchange programmes, global industry- university interactions, multidisciplinary curricula, international accreditation, analysis of new trends in Engineering Education, etc.. It is believed that this objective can be better achieved through smaller discussion groups dealing with specific themes, animated by a panel of moderators. This model will create, most probably, the right climate for fruitful discussions, generating follow-up collaborations that will promote international activities in curricula development.

Tentative themes for the Workshops are:

- Looking Back to Build the Future
- Excellence vs. Massification
- Assessment and Accreditation
- Recruitment and Public Consciousness of the Sciences related to Technologies
- Development of Electronic Supports for Engineering Education

- Portuguese International Partnerships and Alliances in Engineering Education and Research
- International Collaboration with Portuguese Speaking Countries in Engineering Education

e. Plans for Publication of Proceedings:

Hardcopy of abstracts and Plenary Lectures; CD-ROM and WWW for abstracts and full papers.

f. Proposed Schedule:

Identical to the one suggested in section C of the document “Suggested ICEE Important Dates”.

January 2005- Mail out of the first Call for Papers

July 2005- Mail out of second Call for Papers and distribution of information at the previous ICEE Conference

November 2005- Mail out reminder of Call for Papers

15 January 2006- Deadline for abstract submission

28 February 2006- Notice of acceptance to authors

15 April 2006- Deadline for Manuscript reception

30 June 2006- Deadline for early registration to ICEE 2006

15 May 2006- Mail out Final Programme, registration materials and hotel information

1-5 August 2006- Conference and Workshops.

g. Hosting Institution:

Faculdade de Ciências e Tecnologia da Universidade de Coimbra- “Faculty of Science and Technology of the University of Coimbra”.

h. Chairs:

Honorary President of the Conference:

Dean of Faculty

General Chairman:

Prof. Carlos Sá Furtado (Professor at Coimbra University)

Co-Chairs and Members of the Organising Committee:

Prof. Maria Saete Leite (Professor at Coimbra University- Physics)

Prof. Maria José Almeida (Professor at Coimbra University- Physics)

Prof. Carlos Correia (Professor at Coimbra University- Physics and Physical Eng.)

Prof. António Dias Figueiredo (Professor at Coimbra University- Informatics)

Prof. Xavier Viegas (Professor at Coimbra University- Mechanical Eng.)

Prof. Maria Teresa Vieira (Professor at Coimbra University- Mechanical Eng.)

Prof. João Perdigão (Professor at Coimbra University- Electrical and Electronics Eng.)

Prof. Artur Soares Alves (Professor at Coimbra University- Geographic Eng. and Mathematics)

Prof. Jorge Nuno Almeida e Sousa (Professor at Coimbra University- Civil Eng.)

Prof. António Tadeu (Professor at Coimbra University- Civil Eng.)

Prof. Luís Leal Lemos (Professor at Coimbra University- Civil Eng.)

Prof. Alexandre Tavares (Professor at Coimbra University- Geological Eng.)

Prof. Nelson Rodrigues (Professor at Coimbra University- Mining Eng.)

Prof. Maria da Graça Rasteiro (Professor at Coimbra University- Chemical Eng.)
Prof. Pedro Saraiva (Professor at Coimbra University- Chemical Eng. and Vice-President of the Regional Section of the Portuguese Charter of Engineers)

Members of the other Portuguese Engineering Schools and of the Portuguese Charter of Engineers will be invited to join the Organising Committee at a later stage.

Short CVs of the Organising Committee follow as annex.

The International Advisory Committee will be constituted at a later stage by invitation to renowned personalities in the Engineering field (Education, Research, Industry, etc.) from different countries including Portugal.

Co-operation of other Institutions:

The Conference will count with the co-operation of other Institutions, namely:

IDECT-Instituto de Divulgação e Ensino das Ciências e Tecnologias (Institute for the Dissemination and Education in Sciences and Technology- Faculty of Science and Technology- University of Coimbra);
Instituto Pedro Nunes;
Ordem dos Engenheiros (Portuguese Charter of Engineers);

The Polytechnic Institute of Coimbra, which does also have an Engineering School, will be invited to co-operate with the Conference Organising Committee.

We expect that other International Institutions will join the project at a later stage, like for instance FEANI- Federation Européene d' Association Nacional de Ingenieurs , American Society for Eng. Education, etc..

i. Introduction to the Hosting Institution:

See Annex.

Note: The Faculty of Science and Technology possesses a statute of autonomy inside the University of Coimbra, being represented by its President who acts on behalf of the Faculty as far as the signature of any contract related to the activities developed in the Faculty are concerned.

j. Introduction to the Hosting City:

See Annex.

k. Comments on Conference Facilities:

One Central Auditorium (600 seats) with reception facilities and multimedia equipment.

One Auditorium (500 seats) with reception facilities and multimedia equipment.

Several (a minimum of 10) smaller auditoria (up to 300 seats).

Several smaller lecture rooms (up to 70 seats).

There is also a Congress Centre under construction at Coimbra.

The site of the Engineering School, where the proposed Conference will take place, has got access to large canteen facilities and bars for coffee breaks. This campus is an attractive place, close to the river, in a green area of the city.

It is hoped that the construction of a new Central building, with large facilities, will start this year, being complete by the time of the Conference.

The Engineering Campus has also got facilities for students lodging.

The University owns a Palace in the surroundings of Coimbra (Palácio de S. Marcos), which constitutes the perfect setting for the Conference banquet. In fact, this palace has been used quite often for that type of events.

Coimbra is a city equipped with a large variety of hotel facilities (3 to 5 stars Hotels and cheaper Boarding Houses).

Coimbra is not far from the two main Portuguese international airports, being served by fast trains and busses that connect Coimbra to the Central Stations close to those airports (less than 1 hour to the nearest station close to the Oporto International airport). In Coimbra busses will be reserved to the service of the Conference.

I. Proposed Social/Cultural Programmes , Technical Visits and Exhibition:

Social Programme:

Sunday before the Conference- visit to the University of Coimbra: the Old Royal Residence, the Old Library, the Faculties and Museums;

Monday evening- Reception at the Town Hall;

Tuesday evening- banquet at the S. Marcos Palace with Coimbra traditional song (Fado);

Wednesday (end of the afternoon)- visit to a wine producer and Mansion;

Thursday evening- Organ Concert at the University Chapel.

Cultural and Accompanying Persons Programme:

City visit of Coimbra and its region (Roman City of Conimbriga, the Forest and Palace of Buçaco...);

Tour of the Vineyards of Dão (houses, places and vines);

Tour to the Monastery of Batalha (gothic XV century), to the Sanctuary of the Holy Virgin of Fátima, to the walled City of Óbidos and to the beach of Nazaré;

River trip up the Rio Douro (post conference tour).

Technical Visits Programme:

-Laboratories and Research Institutes of the University of Coimbra (robotics, materials, biology, high energy physics, etc.);

-Transfer of Technology Institute (IPN-Instituto Pedro Nunes) with spin-offs incubator and to the Coimbra Tecnopole;

-Moulds and Crystal Factories in Marinha Grande;

-Electrical Power Plant and Dam of Aguieira (in the Mondego River);

-Modern Pulp and Paper Factory in Figueira da Foz;

-Modern Ceramics Factories in the Central Region of Portugal (tiles and porcelains, e.g. Vista Alegre) and Technological Centre of Ceramics- CTCV;

-Limestone quarries and geological site of Cabo Mondego;

-Construction site of the new Portuguese Airport at Ota.

Exhibition:

An Exhibition of technical books, multimedia and software tools and scientific equipment will be organised in the site of the Conference, in one of the halls of the Engineering Campus of Coimbra University.

m. Costs and Funding:

It is difficult, so early in advance to estimate, accurately, the Conference costs, however, it is possible to identify some usual sources of costs:

- Autumn INEER meeting in Portugal (includes payment of hotel for committee members): 10000 Eur. (\cong 8000 US \$);
- Secretariat: 20000 Eur. (\cong 16500 US \$);
- Mailings: 8000 Eur. (\cong 6500 US \$);
- Conference facilities: 8000 Eur. (\cong 6500 US \$);
- Brochures/Programme: 20000 Eur. (\cong 16500 US \$);
- Publication (hardcopy, CD): 30000 Eur. (\cong 25000 US \$);
- Publicity: 10000 Eur. (\cong 8300 US \$);
- Web preparation and maintenance: 8000 Eur. (\cong 6500 US \$);
- Invited Speakers: 25000 Eur. (\cong 20500 US \$);
- Banquet: 20000 Eur. (\cong 16500 US \$);
- Lunches and coffee breaks during the Conference: 20000 Eur. (\cong 16500 US \$);
- Busses during the Conference: 5000 Eur. (\cong 4200 US \$);
- Participation in INEER meetings (at least 3 meetings): 10000 Eur. (\cong 8000 US \$);
- Contribution to INEER/ICEE: 55000 Eur. (\cong 45000 US \$);
- Others (this may include a limited number of grants for students participation): 26000 Eur. (\cong 21000 US \$).

Total Costs: 275000 Eur. (\cong 225500 US \$).

As for fund provisions several sources can be considered based on previous experience:

-Conference fees (average individual fee- 550 Eur. (\cong 450 US \$) though special prices (15-20 % discount) can be considered for members of the Portuguese Charter of Engineers and for INEER members): \cong 220000 Eur. (\cong 180000 US \$);
Note: an average attendance of 400 participants has been assumed only to be cautious as far as the income calculations are considered.

- University of Coimbra;
- Faculty of Science and Technology from Coimbra University (FCTUC);
- Coimbra Municipality;
- Portuguese Science Foundation (FCT-FACC);
- Ministry of Education (including special co-operation programmes with the Portuguese Speaking Countries);
- Gulbenkian Foundation;
- Portuguese Charter of Engineers;
- Fundação Oriente;
- FLAD-Fundação Luso-Americana para o Desenvolvimento (Luso-American Foundation);
- IAPMEI (Institute for Support of SMEs);

- CCRC (Commission for the Co-ordination of the Central Region of Portugal);
- European Community;
- NSF -National Science Foundation;
- NATO (co-operation with Eastern countries);
- CGD- Caixa Geral de Depósitos (Portuguese bank) and other Financial Institutions;
- Industrial Companies.

Provisional total of grants and donations: ≅55000
Eur. (≅45500 US \$).

Total Income: 275000 Eur. (≅225500 US \$).

The aforementioned Institutions are a guarantee that the necessary support to the ICEE 2006 can be obtained.

No provision has been made for costs associated with the Technical Visits and Exhibition, since additional fees have to be charged for the attendance of those events, namely to the exhibitors.

n. Dates and Sites for International Steering Committee Meeting:

Date- Second fortnight of September or first fortnight of October.

Local- S. Marcos Palace (Coimbra University, Coimbra, Portugal).

Programme- Presentation of the Programme of the ICEE 2006 by the General Chair, discussion between the Organising Committee and the Steering Committee of orientations for improvement of the presented programme. Visit to the places where the Conference will be held.

Lodgings- It will be provided to the Steering Committee at the S. Marcos Palace or at Hotels in Coimbra.

o. Commitment by the Organising Committee:

The Organising Committee has read the guidelines carefully and declares to adhere to the INEER guidelines (see declaration signed by the General-chair in the annex).

p. Proposed Call for Papers:

See annex.

q. For the Final Remarks:

Portugal can be considered the pioneer nation in making the World just one, starting with globalisation for the good for the bad. In the past, Portuguese engineers worked altogether with navigators and explorers. This historical patrimony has its modern expression in the Portuguese speaking countries and peoples throughout the World. Belonging to the European Union, Portugal contributes to the advancements of the Sciences and Practice of Engineering and makes a serious effort to be in the front line of the Progress.

Coimbra is an old city, prior to the stay of the Romans in Lusitania, in the border line between the highlands and lowlands in the Central Region of Portugal, being proud of showing some of the finest architectural pieces in the country. The oldest Portuguese University, ancient of seven centuries and with a large spectra of competences, is its most precious asset. Traditional and new areas of Engineering are taught and investigated at the Faculty of Science and Technology in nice and attractive surroundings.

These are the reasons why we claim that Coimbra and Portugal make good places to discuss and open new avenues for the teaching and learning of Engineering.

Contacts:

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ANNEX

Hosting Institution

Faculty of Science and Technology- University of Coimbra (FCTUC)
www.fct.uc.pt



Historical Synthesis

The Faculty of Science and Technology of the University of Coimbra (FCTUC) has more than two centuries of existence. In fact, it is with the **Pombalin Reform**, promulgated in **1772**, that the first attempt is made to promote the study of exact sciences to a more privileged position. The Marquee of Pombal created, in the University of Coimbra, the new Faculties of Philosophy and Mathematics, where the teaching of Natural Sciences and Mathematical Sciences is carried out.

The **Faculty of Sciences** was a creation of the First Republican Government, in **1911**, as the result of the merge between the Faculties of Philosophy and Mathematics.

The teaching of the first years of the Engineering courses was carried out in the Faculty since the twenties; however, the students were obliged to move to Lisbon or Oporto in order to complete their degrees.

Until 1972, the Faculty included in its curricula the degrees in Mathematics, Physics, Chemistry, Geology, Biology and Geographical Engineering. In **1972** the Faculty created the degrees in Civil, Electrical, Mechanical, Chemical and Mining Engineering, and adopted its present designation. The Engineering Departments are installed since 1998 in a new and modern campus with up-to-date facilities.

In **1980**, the courses in Biochemistry, Geological Engineering and Industrial Chemistry began, followed by Physical Engineering and Informatics in **1984**, Architecture in **1988**, Materials Engineering in **1991** and, finally, **Anthropology in 1992**.

Presently, this Faculty has about **700 Professors** and **Lecturers** and **9000 students** and offers **19 degrees** and **28 master-degrees** (5 in collaboration with other Schools). Nowadays, the FCTUC is considered, in the context of the Portuguese Schools of Science and Technology, the most complete, as far as the scientific areas included are concerned, also the most complex under a structural point of view and the second biggest in number of students. It is also, undeniably, one of the most dynamic Schools of Higher Education in Portugal.

Lecturing and Research Units

Department of **Anthropology**; Department of **Architecture**; Department of **Biochemistry**; Department of **Botany**; Department of **Chemical Engineering**; Department of **Chemistry**; Department of **Civil Engineering**; Department of **Earth Sciences**; Department of **Computers and Electrical Engineering**; Department of **Informatics Engineering**; Department of **Mathematics**; Department of **Mechanical Engineering**; Department of **Physics**; Department of **Zoology**; Geophysics Institute; **Museum of Natural History**; **Institute for Diffusion and Teaching of Science and Technology (IDECT)**.

Astronomical Observatory (Department of **Mathematics**); **Botanic Garden** (Department of **Botany**); **Museum of Physics** (Department of **Physics**).

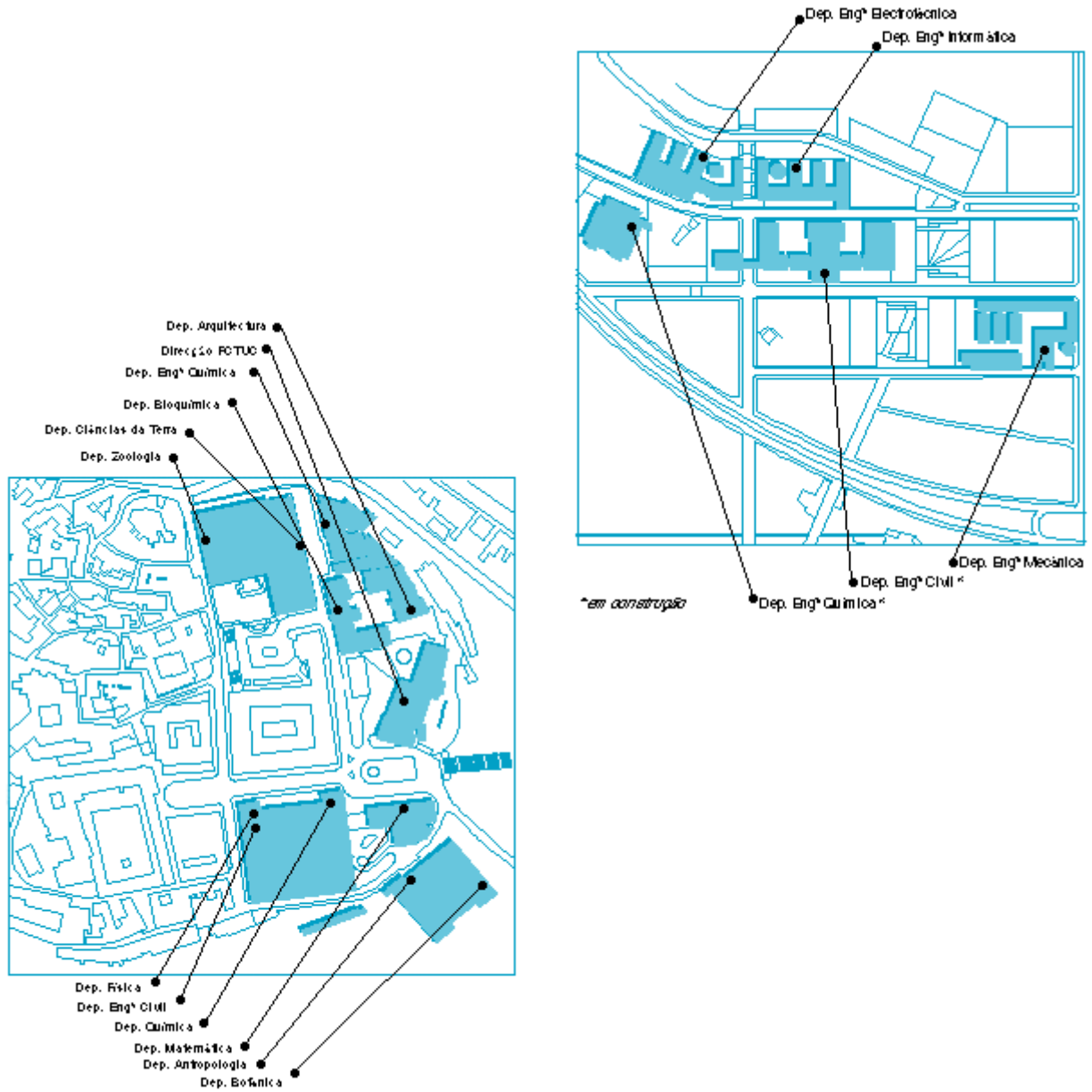
21 **Research Units** in different fields.

Besides the **activities of I&D** carried out at the Lecturing and Research Units, there are also **Research Centers and Associations**, in operation, which allow complementary framework:

Research and Development

- [AIBILI](#) - Association for the Institute of Biomedical Research on Light and Image
- [CELGA](#) - Centre of General and Applied Linguistic Studies
- [CEMUC](#) - Mechanical Engineering Center from University of Coimbra
- [CIM](#) - International Centre for Mathematics
- [CISUC](#) - Centre for Informatics and Systems of the University of Coimbra
- [CMUC](#) - Centre for Mathematics of the University of Coimbra
- [CNC](#) - Centre for Neuroscience and Cell Biology
- [GEI](#) - Electronics and Instrumentation Group
- [GEMF](#) - Group for Monetary and Financial Studies
- [IMAR](#) - Institute of Marine Research
- [IPN](#) - Pedro Nunes Institute
- [ISR](#) - Institute of Systems and Robotics
- [IT](#) - Institute of Telecommunications
- [ITPC](#) - Institute for Technologies of Production in Construction
- [LIP](#) - Laboratory of experimental High Energy Physics and associated instrumentation.
- [LTMEU](#) - Laboratory of Electronic Materials and Ultrasonics

- **Faculty Campus**



Degrees (Branches)

Anthropology; Architecture (**Architecture and Technology**); Biochemistry; Biology (**Educational Training; Scientific**); Chemical Engineering; Chemistry (**Educational Training - Physics and Chemistry Teaching; Scientific, optional areas: Chemistry of Biological Processes; Chemistry-Physics**); Civil Engineering; Computers and Electrical Engineering (**Automation; Computers; Energy; Telecommunications**); Geographic Engineering; Geological Engineering; Geology (**Educational Training; Scientific**); Industrial Chemistry (**Optional areas: Chemistry Control of Quality; Processes and Chemical Synthesis**); Informatics Engineering; Materials Engineering; Mathematics (**Educational Training; Scientific, specialisation areas: Computer Science; Applied Mathematics; Pure Mathematics**); Mechanical Engineering (**Production; Thermodynamics and Fluids**); Mining Engineering; Physical Engineering (**Instrumentation; Materials Science**); Physics (**Educational Training - Physics and Chemistry Teaching; Scientific, specialisation areas: Theoretical Physics; Experimental Physics**).

Master Degrees (Specialisation Areas)

Animal Biology; Cellular Biology; Biochemistry; Biochemistry Engineering; Chemical Engineering (**Chemical Processes; Industrial Engineering**); Chemistry (**Chemical Quality Control; Chemistry of Chemical Processes; Physical Chemistry**); Civil Engineering (**Construction Sciences; Structures**); Computers and Electrical Engineering (**Automation and Robotics; Computers and Electronics; Energy; Materials and Devices; Telecommunication Systems**); Earth Sciences (**Environment and Territorial Planning; Natural Sciences Teaching**); Ecology; Environmental Engineering; Hydraulic, Water Resources and Environment; Human Evolution (**Biological Anthropology**); Informatics Engineering (**Automation and Adaptive Computing; Clusters and Distributed Systems; Communications and Telematics; Engineering of Decisional Processes; Information Systems; Knowledge Systems and Technologies; Multimedia Systems for Education and Professional Purposes**); Instrumentation and Microelectronics; Mathematics (**Applied Mathematics; Mathematics for Teaching; Pure Mathematics**); Mechanical Engineering (**Equipment Conception; Materials and Technology; Thermodynamics and Fluids**); Natural History Museology; Physics (**Experimental Physics; Technological Physics; Theoretical Physics**); Physics Teaching; Teaching of Physics and Chemistry; Urban Engineering; Vegetal Biology.

MSc Inter-Faculties

Biomedical Engineering
FCTUC/FMUC

MSc Inter-Universities

Condensed Matter Physics
Department of Physics of FCTUC, University of Aveiro

Materials Engineering

Mechanical Engineering Department/ FCTUC, University of Aveiro, University of Minho, University Nova of Lisbon, Technical University of Lisbon

Pulp and Paper Production Processes Engineering

Chemical Engineering Department/ FCTUC, University of Aveiro, University of Beira Interior, Instit. RAIZ

Soil Mechanics and Geotechnical Engineering

Civil Engineering Department/ FCTUC, Engineering Faculty of Oporto University

PhD Degrees (Specialities)

Anthropology; Architecture; Biochemistry; Biology; Chemical Engineering; Chemistry; Civil Engineering; Electrical Engineering; Geological Engineering; Geology; Informatics Engineering; Materials Engineering; Mathematics; Mechanical Engineering; Mining Engineering; Physics

The royal charter of King D. Dinis announcing the institution of the «Estudo Geral» is dated from 1st March 1290. So it was founded the University that the Bull of pope Nicolau IV confirmed on 9th August of that year. There all the «licit» Faculties such as Canon Law, Law, Medicine and Arts were established with exception for Theology (created only around 1380).

Having alternated its functioning between Lisbon and Coimbra, it was moved definitively to Coimbra in 1537, by decision of King D. João III that has at the same time, deeply restructured it. Several Colleges were then established – such as «College of the Arts», «College of S. Paul» and «College of S. Peter» that extends to south of «Porta Férrea» - with teaching, lodging and assistance functions.

During the reign of King D. José (1750-1777) it began to be felt an influence of the «absolutismo esclarecido», that was responsible for one of the greatest University restructure. It began on 1772 and spread it out for the next years and had as top performers the powerful Minister Marquis of Pombal who was appointed «Visitor» of the University and of D. Francisco de Lemos, «Rector-Reformer».

New statutes were presented with great ceremonial by Pombal in the 29th September 1772 and since then the signs of the measures taken by Pombal began to appear. With the expulsion of the Jesuitas in 1759, several large buildings were empty and some of the new Faculties and offices of Pombal restructure were settled there. Dated from this period, by the way, of great economic potentiality (D. João V and D. José I) we have some beautiful buildings, that still label the University life: The Tower and King John Library (from pre-Pombal period), The Museum of Natural History, The «Chemical Laboratory» and The Botanical Gardens.

With the liberal movement of 1820 and with its establishment in 1834 the University was going to suffer disturbed times of conservatism and change, of crisis and dynamism.

From the sixties of XIX century until the arrival of the Republic (1910) several academic movements of great significance, led by famous figures of our literature such as Almeida Garret, Antero de Quental, João de Deus, Eça de Queirós, among others, organised revolts against the academic conservatism and the show up of organised models of associations such as theatrical, literary and choral groups. The foundation of the Academic Association of Coimbra is dated from this time (1887) which has been, through its existence, pointed out for the organised contention against the political power at the University and outside it, remaining, even in adverse times, as a strong standard of autonomy and as a focus of dissemination of an associative and cultural energetic life. With the establishment of the Republic (1910) the Government, that bet in the democratisation of education, has encouraged and supported the founding of other Universities in Lisbon and at Oporto, while some restructures were taken at the University of Coimbra. In 1911, one year later after the implementation of the Republican regime the Faculty of Theology was extinguished and at the same time the Faculty of Arts was founded.

The Faculties of Mathematics and of Natural Philosophy were converted into the Faculty of Sciences and were established the Schools of Pharmacy and of «Normal Superior». The School of Pharmacy was later nominated as Faculty.

The military dictatorship, which arose out of the «national Revolution» of the 28th May 1926 and the establishment of the «Estado Novo» in 1933, were greatly responsible for the disappearing of some historical buildings of old «upper» Coimbra, without exception for churches, renaissance colleges and houses in Manuelin or baroque architectural style. In their

places new buildings were established pointing out the architectonic model characteristic of that period.

Concerning the scientific and pedagogical aspects we have also assisted, in this period, to a worried stagnation. During the seventies the Government leader, Prof. Marcelo Caetano and his Minister Prof. Veiga Simão, soon realized that it was impossible to ignore the social, political, scientific and cultural movements which were lived in all Europe. So, the University of Coimbra lived an essay of modernisation, creating courses with a «functional» and technological objective (in 1972 the Faculty of Science changed the name to Faculty of Science and Technology and the Faculty of Economics was created) and establishing new Universities (Aveiro, Braga, and Évora). The «student movements» has great importance as an organised means of defence and struggle for better conditions for education and also for political and social ideals.

With the «Revolução de Abril» - 1974 – the University seemed to blow up, raising swiftly the number of students registered. New ways of democratic functioning were established and rises again the struggle for the conquest of the autonomy that has its realisation in September 1989, with the approval of the Law of the University Autonomy, by the Assembly of Republic.

Nowadays with eight Faculties – Arts, Law, Medicine, Sciences and Technology, Pharmacy, Economics, Psychology and Teacher Training and the Faculty of Physical Training and Sciences of Sport, the University of Coimbra has exceeded the traditional dimension for the old «upper» Coimbra, extending itself to new focus of development. The University operates based on its own Statutes organised and approved by the University Assembly (elected and representative of students, teaching staff and administrative staff) and pretends, above all, to be a focus of continuous modernisation. But this march up to the future doesn't make forget her very ancient traditions. The «academic praxis» adjusted to the new ways of daily life, the students feasts, namely the «Queima das Fitas» (that represents the end of the academic year and for many students, the end of their degree), the «Fado», song that has been adjusted to the new cultural and also political and social realities, the «Solemn graduations» with their peculiar ceremonial, the «Republics» (students' residences ruled by them) and the existence of a powerful Academic Association, make the University of Coimbra to be a very peculiar Institution with unequal characteristics.

The total number of students in the University of Coimbra rounds 26000, 3000 being post-graduate students (the largest percentage from the Faculty of Science and Technology).

ANNEX

Hosting City

Coimbra

www.turismo-centro.pt

Coimbra is a small city with an overall population of 100000 people and a floating population of 25000 students. In fact, Coimbra has got two Higher Education Schools: the University and the Polytechnic Institute, and several Professional Schools.

Moreover Coimbra has got several Technical Infrastructures , like Technical Centres, IPN-Transfer of Technology Institute and the Coimbra Tecnopole (currently in the last phase of the project).

There are testimonies that take us on a trip where history was written with Celtic sounds until the 2nd Century AD, when the Romans arrived, having remained up to now the signs of grandeur, which can be admired at the Cryptoportic of Civitas Aeminium in the National Museum Machado de Castro.

Coimbra has then turned Moorish, being the name of the city inside the walls Almedina, until the time of the conquest of Christian Faith began.

The cities protected themselves around the temples, and by the will of D. Afonso Henriques, Portugal's first King, the Monastery Santa Cruz was built in 1331, and the city became the cradle of the kings.

The Old Cathedral, from 1184, is still the witness of romantic arts. However, Coimbra owes sober monasteries and convents, where the light illuminated nude walls and the arches rised up to God, to the monks of the S. Bento and Cister orders. The ancient Convent Santa Clara-a-Velha is also a witness of the devotion the people rendered to the Queen Isabel of Aragão, who became a Saint.

Although it is through the renaissance and the University that Coimbra has become significative throughout the times. The University was founded in 1290 by King Dinis and definitively transferred to Coimbra in 1537.

Although the dignifying Hall has always granted its pride, the distant seas sailed by the Portuguese also brought other treasures: the Portals in Manuelin style, St. Michael's Chapel and even the signs of exuberance of the exotic woods and brazilian gold in King John Library. The elegant colonnade Via Latina gives access to the Grand Hall, the solemn Hall called Sala dos Capelos, with portraits of Kings throughout the walls, where the most important ceremonies in the life of the University still take place.

The Old Tower, with thirty four meters of height, still strikes every hour, and in May the University dazzles with the colours of all Faculties, when the student's festivities begin with the burning of the spout and end with the students parade through the city.

And if it is from the Patio of the University that the Mondego river seems more beautiful, it certainly is also because in Coimbra the river was always sung. The students gave and still give to Coimbra, Fados and Ballads, books and poems, dreams and nostalgia. It is why that even when the Porta Férrea stays behind in the life of all, Coimbra never leaves their hearts.

And life is always there, on the squares in the late afternoon, where the smell of flowers joins colourful fruits hanging on a doorway and an accordion player seems to be stopping the time.

And there's a violin concert in an ancient temple. And there are bookshops and antiquarians. And the art galleries. And the Museum. And the geometric gardens. And the accurate design of Portuguese steep streets. And that's how life turns into pieces of a city stuck to our eyes.

Coimbra has got all the necessary facilities of modern life (hotels, restaurants, bars, cinemas, etc.) including one of the best hospitals in the country. Moreover, Coimbra is a city which has

been considered to have one of the best quality of life in Europe. the green areas scattered by the city and the Mondego river contributing to the amenity of the urban landscape. Coimbra can be easily accessed from the two main international airports in Portugal, being served by modern motorways and by the main Portuguese railway line (fast trains). It is well known that Portugal has been making a gigantic effort to modernisation, namely as far as infrastructures are concerned, as has been recognised by the international community by selecting Portugal to host important international events like EXPO 98 and EURO 2004.

ANNEX

FIRST CALL FOR PAPERS

International Conference on Engineering Education- ICEE 2006?

The Moving Frontiers of Engineering

**University of Coimbra- Faculty of Science and Technology
Coimbra- Portugal- 2006??**

www.....

Sponsored by the International Network for Engineering Education & Research (INEER), the ICEE conferences represent an opportunity to exchange and discuss experiences and progresses in Engineering Education, new strategies adopted around the world, evaluation of new methodologies, creating simultaneously the possibility to establish mutually beneficial collaborative efforts.

In a rapid moving World, where Technology and Engineering changed dramatically the ways of living and producing, the New Vague of Information and Knowledge compels us to think how Engineering Education has to cope with changes and to direct the social evolution to a greater Dignity of the Mankind. This is the reason for the *Motu* of the 2006 ICEE: **The Moving Frontiers of Engineering**.

The Conference will follow the same general model of the previous Conferences, combining technical sessions, comprising plenary lectures by renowned scientists, with workshop panels and technical visits.

The 2006? Conference will take place at Coimbra University in Portugal, which presents a perfect environment to discuss these most important subjects to modern society. Coimbra University is the oldest University in Portugal and one of the oldest in Europe, ancient of seven centuries.

Date: 1- 5 August 2006

Venue: University of Coimbra- Portugal
Engineering School (Faculty of Science and Technology) Campus

Emphases:

- *Rediscovering the Foundations*
- *Global Partnership*
- *The Challenges of Research*
- *What Degrees for What Jobs?*
- *Relevance of New Educational Tools*

Suggestions for technical sessions to be included under the previous general Emphases are welcomed by the Organising Committee.

e-mail.....

Abstract Submission:

Abstracts of up to 300 words will be accepted till the.....2006. Submission must be made in electronic format at the following address: **www.....**

Review: After a reviewing process, communication of acceptance will be sent to the authors before2006.

Publication Policy: Publication will be mainly electronic (CD-ROM and WWW publication of abstracts and full papers). At the Conference site a hardcopy of the abstracts and Plenary Lectures will also be available.

Important Dates:

15 January 2006- Deadline for abstract submission
28 February 2006- Notice of acceptance to authors
15 April 2006- Deadline for Manuscript reception
30 June 2006- Deadline for early registration to ICEE 2006

Organising Committee:

General Chairman:

Prof. Carlos Sá Furtado (e-mail.....)

Co-Chairs.....

Steering Committee:.....

ICEE 2006 in co-operation with:

Portuguese Charter of Engineers (Ordem dos Engenheiros)

IDECT

Instituto Pedro Nunes

Others to be contacted at the international level (e.g. FEANI, American Soc. Eng. Education, etc.).

Contacts:

Congress Secretariat

.....

Fax.....

Phone.....

e-mail.....

ANNEX

Short CVs of the Organising Committee

General Chairman

Carlos Sá Furtado

- Licenciatura in Electrical Engineering , University of Porto
- D. Phil. , University of Oxford
- Aggregation in Electrical Engineering, University of Coimbra
- Professor Catedrático-Full Professor-of Electrical Engineering, University of Coimbra
- Member of the Conselho Consultivo do Museu Nacional da Ciência e da Técnica-Consulting Council of the National Museum of Science and Techniques(1973-1976) and nominated Director(1977)
- Chairman of the Scientific Council of the Faculdade de Ciências e Tecnologia-Faculty of Sciences and Technology- of The University of Coimbra (FCTUC) (1979-1980)
- Director of the journal Gazeta de Física(1980-1981)
- Dean of the Departamento de Engenharia Electrotécnica-Dept. of Electrical Engineering(1981-1985)
- Pro-Rector of the University of Coimbra(1987-1990)
- Member of the Scientific Council of the Instituto Nacional de Investigação Científica-National Institut for the Scientific Research(1981-1992)
- Chairman of the Regional Section of Ordem dos Engenheiros- Charter of Engineers(1989-1994)
- Member of the National Board of Ordem dos Engenheiros- Charter of Engineers(1989-1994)
- Dean of the FCTUC(1994-1998)
- Director of the Scholarships Department of the Calouste Gulbenkian Foundation(1992-2001)
- Member of the Conselho Nacional de Educação-National Education Commission- Portugal (1997-2000)
- Chairman of the FUP Evaluation External Commission, 6th Phase, for the Engineering Courses(1999-2000)
- Member of two FUP Evaluation External Commissions for the Electrical Enginneering Courses(1995-1996 and 2000-2001)
- Member of the APESP Evaluation External Commission for the Private University Institutions of the Central Region of Portugal(2000-2001)
- Member of the Portuguese Parliament(1985-1987)
- Member of the NATO General Assembly(1985-1987)
- Member of the Municipal Assembly of Coimbra(!989-1993)
- Member of several scientific and professional societies
- Responsible for the organisation of several meetings namely:
 - Workshop- "Criação de Empresas de Base Tecnológica (Technological Spin-Offs)- 29 October 1997- Coimbra, Portugal;
 - Formal Celebration of the 25th Anniversary of the Engineering School of FCTUC- 1998- Coimbra;
 - Formal Opening of the Museum of Physics.
- More than 100 scientific papers

Other Members

Name: **Maria da Graça Bontempo Vaz Rasteiro**

Place and Date of Birth: Pereira- Montemor-o-Velho, Portugal

Nationality: Portuguese

Institutional Address: Chemical Engineering Dep.- Coimbra University
Pólo II, Pinhal de Marrocos, 3030-290 COIMBRA

Telephone, Fax, E-mail: 351239-798725; 351230-798-703; mgr@eq.uc.pt

Academic Background: Phd. in Chemical Engineering (Unit Operations) by Coimbra University- 1988;
Licenciatura (Diploma) in Chemical Engineering by Coimbra University- 1975.

Present Professional Position: Associate Professor of Chemical Engineering at Coimbra University since 1994.

Present and Previous Professional Activities: Member of the direction of IDECT- (Institute for the Dissemination and Education of Sciences and Technologies);
Member of the co-ordinating board of the Materials Eng. Degree- FCTUC;
Member of the evaluation panel of the Engineering Degrees- FUP (1999-2000);
Vice-President of the Board of Directors Instituto Pedro Nunes-Coimbra (1997-99);
Member of the Faculty Assembly (1995-1999);
President of the Chemical Engineering Department- Coimbra University (1994-97);
Co-ordinator of the Pedagogical Council of the Chemical Eng. Dep. (1983-85);
Auxiliary Professor of Chemical Engineering at Coimbra University (1988-1994);
Lecturer of Chemical Engineering at Coimbra University till 1988.

Main Research Areas: Chemical Engineering / Multiphase Systems.

Other Scientific Areas of Interest: Materials; Particulate Technology; Particle Characterisation; Environment; Development of tools for public awareness to Science and Technology subjects.

Organisation of Scientific Meetings: Member of the Organising Committee of the "1st Int. Symp.- Materials 2001", Coimbra- Portugal, April 2001;
Co-organiser of the Workshop "A Ciência e a Tecnologia como Factores de Desenvolvimento Nacional"- (Science and Technology as Factors for National Development) IPN, Coimbra-Portugal, Oct. 1998;
Co-organiser of the "Open Day of IPN's Incubator" (workshop with seminars and exhibition), Coimbra-Portugal, Dec. 1998;
Member of the International Organising Committee of the Engineering Foundation Conference "Control of Particulate Processes IV" -Delft, Holland, April 1997;
Member of the Scientific Committee of the "23rd Annual Meeting of the Fine Particle Society"- Las Vegas, USA, July 1992.

Other Activities: Co-promoter of the proposal to build an Interactive Science Centre at Tomar, Portugal, "Movements and Mechanisms";
Co-promoter of the proposal to build an Interactive Science Centre at Proença-a-Nova, Portugal, "Forests and Environment", approved by the MCT (Ministry of Science and Technology);
Co-promoter of the proposal to build an interactive web-site for reception and preparation of future Chemical Eng. students, in co-operation with teachers and students from the final level of secondary schools;

Organiser of the Open-Week of the Faculty of Science and Tech. (reception to secondary school students), 2001;
Member of the Regional Board of Chemical Engineers from the Portuguese Charter of Engineers (1992-1995).

Publications:

- **M. G. Rasteiro**, M. Panarra, G. Urbano, "Experimental Study of the Rheology of Fibre Suspensions", in *European Cong. Chem. Eng.-ECCE3*, Nuremberg, Alemanha (Junho 2001);
- **M. G. Rasteiro**, A Jorge, M. Vidal, "Towards the stabilisation of ceramic glaze suspensions", in *Materiais 2001*, Coimbra, Portugal (Março 2001);
- **M. G. Rasteiro**, A. Ribeiro Gomes, " Developments in Solid-Liquid Flow in Pipes", *Kona Powder and Particles* (accepted for publication);
- R. G. Alexandre, **M.G. Rasteiro**, "Pipe Flow of Soli/Liquid Suspensions with a Broad Size Range", in *PARTEC 2001*, Nuremberg, Germany, March 2001.
- **M. G. Rasteiro**, I. Salgueiros, "Rheological Characterization of Ceramic Suspensions", in *2000 AIChE Annual Meeting*, L. A. , USA, Nov. 2000.
- R. G. Alexandre, **M.G. Rasteiro**, "Flow of Solid/Liquid Suspensions in Horizontal Pipes: an Improved Design Strategy", in *CHISA 2000*, Prague Sept. 2000.
- C. C. Lemos, **M.G. Rasteiro**, " Nanoparticles Characterisation by PCS: How to Discriminate Bimodal Distributions", in *CHISA 2000*, Prague Sept. 2000.
- **M. G. Rasteiro**, M. Salette Leite, " Innovation and Technology Transfer: the Experience of Instituto Pedro Nunes", Proc. "*2nd International Conference on Technology Policy and Innovation*", Lisbon, Portugal, 22.1 (1998).
- M. Salette S. C. P. Leite, **Maria da Graça Rasteiro**, " The Importance of the Institutions for Transfer of Science and Technology on Engineering Education- the Experience of Instituto Pedro Nunes", Proc. "*ICEE 98 - Int. Conf. On Engineering Education*", Rio de Janeiro, Brasil (1998).
- **M. G. Rasteiro**, M. N. Sousa, "Rheological Characterization of Fiber Suspensions", Proc. "*3th World congress on Particle Technology*", Brighton, U. K., paper 264 (1998).
- **M.G. Rasteiro**, M.M. Figueiredo, C. Freire, "Modeling Slurry Mixing Tanks", *Advanced Powder Technology*, 5, 1, 1-14 (1994).
- **M.G. Rasteiro**, M.M. Figueiredo, M.C. Maia, B. Scarlett, "Modeling of Solid/Liquid Flow in Pipes", *Powder Handling & Processing*, 5, 3, 253 (1993).
- P.J. Ferreira, **M.G. Rasteiro**, M.M. Figueiredo, "Influence of Shape on Particle Size Analysis", *Particulate Science and Technology*, 11, 3-4, 199-206 (1993).
- **M.G. Rasteiro**, "Caracterização de Materiais Granulares 1ª parte - Distribuições Granulométricas", *Cadernos de Engenharia Química*, nº 2, DEQ-FCTUC (1993).
- M.M. Figueiredo, **M.G. Rasteiro**, C. Santos, C. Monteiro, "Mass Calibration of the Coulter-Counter", *Model ZM, Particles & Particle Systems Characterization*, 8, 4, 249 (1991).

Name: **Maria Salete Silva Carvalho Pinheiro Leite**

Date of birth: 13/Feb/1940

Nationality: Portuguese

Institutional address: Departamento de Física , Rua Larga, Universidade de Coimbra,
3004-516 Coimbra, Portugal

Tel.: 351-239410659 Fax: 351-239829158 e-mail: msleite@lipc.fis.uc.pt

Academic degrees:

- Lic. Chemical Engineering – IST-Technical University of Lisbon, 1963
- Ph.D.-Physics – Victoria University of Manchester, U.K., 1969
- Agregação in Physics – University of Coimbra, 1978

Present position:

- Prof. Catedrática (Full Professor), Physics Department, University of Coimbra, since 1979

Main scientific area of research:

- Atomic and Molecular Physics
- Radiation Detection Physics

Other scientific areas of interest:

- Research in Physics Education
- Innovation and Technology Transfer

Membership in editorial teams:

- Editorial Board of European Journal of Physics, Institute of Physics, London, U.K., 1996-1999
- Editorial Consultant Committee of Calouste Gulbenkian Foundation, Lisbon, Portugal – since 1983

Participation in the organization of scientific international meetings:

- International Symposium on Molecular Forces and Molecular Dynamics – 6-7 December 1982, Coimbra, Portugal
- International Conference on Luminescence – ICL-90, 16-20 July 1990, Lisbon, Portugal
- III Iberian Joint Meeting on Atomic and Molecular Physics – IBER 98, 4-7 May, Mira, Portugal
- 3rd and 10th “Encuentros Ibéricos para la Enseñanza de la Física” alternatively in Portugal and Spain (annual)

Main Positions in the Faculty of Science and Technology of the University of Coimbra (FCTUC):

- Chairman of the General Assembly of FCTUC (1994-2000)
- Head of the Physics Department (1987-1990)
- President of the Pedagogic Committee of FCTUC (1984-1986)
- Vice-President of the Scientific Committee of FCTUC (2000-)
- Director of Instituto Pedro Nunes, an association for science and technology transfer (1997-1999)
- Member of the Senate of the University (2000-)
- Vice-Chairman of the Portuguese Physical Society (1980-1983)
- General Coordinator of ERASMUS and SOCRATES Programms
- Member of the External Committee for Assessment and Accreditation of Physics and Physical Engineering Degrees in the Portuguese Universities

Name: Maria José Barata Marques de Almeida

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Academic degrees:

Agregação, Solid State Physics, Universidade de Coimbra, Portugal, 1988.

Ph.D. Physics, University of Cambridge, U.K., 1976.

Graduation in Physics, Universidade de Coimbra, Portugal, 1970.

Present position:

Full Professor, Departamento de Física, Faculdade de Ciências e Tecnologia, Univ. Coimbra, since 1990.

Previous position:

Assistente Eventual, 1970, Assistente, 1974, Professor Auxiliar, 1976, Professor Associado, 1978, Professor Catedrático (Full Professor), 1990, at the University of Coimbra, Faculty of Sciences and Technology.

Main scientific area of interest: Physics.

Other scientific area of research: Educational Sciences

President of IDECT – Institute for Education in Science and Technology, Faculty of Science and Technology, University of Coimbra.

Publications: (since 1996)

IJ – “A magnetic X-ray diffraction investigation of gadolinium selenide” -M.M.R. Costa, M.J.M de Almeida, W.J. Nuttall, W.G. Stirling, C.C. Tang, J.B. Forsyth and M.J. Cooper – *J. Phys.: Condens. Matter* **8** (1996) 2425-2435.

IJ – “**3 β ,4 α** -Dihydroxy-**5 β** -androstan-17-one” – Manuela Ramos Silva, J.A. Paixão, Maria José M. de Almeida, E.J. Tavares da Silva, M.L. Sá e Melo, A. Campos Neves – *Acta Cryst.* (1996) **C52**, 2892-2894.

IJ – “**3 α ,4 α** -Epoxy-**5 α** -androstan-17-one” – J.A. Paixão, M.Ramos Silva, M.J. de Almeida, E.J. Tavares da Silva, M.L. Sá e Melo, A. Campos Neves – *Acta Cryst.* (1997) **C53**, 347-349.

IJ – “**3 β ,4 β** -Epoxy-**5 β** -androstan-17-one” – L.C.R. Andrade, J.A. Paixão, M.J. de Almeida, E.J. Tavares da Silva, M.L. Sá e Melo, A. Campos Neves – *Acta Cryst.* (1997) **C53**, 938-940.

IJ – “Expedient synthesis of lactone analogues of formestane as new potential aromatase inhibitors” – E.J. Tavares da Silva, M.L. Sá e Melo, A. Campos Neves J.A. Paixão, L.C.R. Andrade, M.J. de Almeida and M.M.R. Costa – *J. Chem. Soc., Perkin Trans. 1* (1997), 3847-3849.

IJ – “Factors affecting student choice of career in science and engineering: parallel studies in Australia, Canada, China, England, Japan and Portugal” – B. Woolnough, J. Guo, M. Salette Leite, M. José de Almeida, T.Ryu, Z. Wang, D.Young – *Res. Sci. Techn. Educ.* **15**, (1997), 105-121.

IJ – “**3 α ,4 β** -Dihydroxy-**5 α** -androstane-17-one” – J.A. Paixão, L.C.R. Andrade, M.J. de Almeida, M.M.R.R. Costa, E.J. Tavares da Silva, M.L. Sá e Melo, A. Campos Neves – *Acta Cryst.* (1998) **C54**, 89-91.

IJ – “**4-Hydroxy-17 α -oxa-17 α -homoandrost-4-ene-3,17-dione**” – J.A. Paixão, L.C.R. Andrade, M.J. de Almeida, E.J. Tavares da Silva, M.L. Sá e Melo, A. Campos Neves – *Acta Cryst.* (1998) **C54**, 92-93.

IJ – “**3,17-Dioxo-4oxaandrostane-5 α -carbaldehyde**” – L.C.R. Andrade, J.A. Paixão, M.J. de Almeida, E.J. Tavares da Silva, M.L. Sá e Melo, A. Campos Neves – *Acta Cryst.* (1999) **C55**, 637-639.

IJ – “**17-Oxo-17 α -oxa-17 α -homo-5 α -androstane-3 α ,4 β -diyl diacetate**” – L.C.R. Andrade, J.A. Paixão, M.J. de Almeida, E.J. Tavares da Silva, M.L. Sá e Melo, A. Campos Neves – *Acta Cryst.* (1999) **C55**, 1186-1188.

IJ – “**3 α -Hydroxy-5 α -androstane-4,17-dione**” – L.C.R. Andrade, J.A. Paixão, M.J. de Almeida, E.J. Tavares da Silva, M.L. Sá e Melo, A. Campos Neves – *Acta Cryst.* (1999) **C55**, 2149-2151.

IJ – “**16 α ,17 α -Epoxy-20-oxopregn-5-en-3 β -yl acetate**” – L.C.R. Andrade, J.A. Paixão, M.J. de Almeida, R.M.L.M. Martins, H.I.M. Soares, G.J.R. Morais, M.J.S.M. Moreno, M.L. Sá e Melo and A. Campos Neves – *Acta Cryst.* (2001) **C57**, 587-589.

IJ – “**5 α -Androst-3-en-17-one**” – J.A. Paixão, L.C.R. Andrade, M.J. de Almeida, E.J. Tavares da Silva, F.M. Fernandes Roleira, M.L. Sá e Melo and A. Campos Neves – *Acta Cryst.* (2001) **E57**, 189-191.

Name: **Carlos Manuel Bolota Alexandre Correia**

Place and date of birth: Angola, Dec 11th, 1946

Nationality: Portuguese

Institutional address: Departamento de Física da Universidade Coimbra

Telephone +351 239 410650

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Email correia@berta.fis.uc.pt

Academic degrees

Agregation	Dec 1999
PhD _____	Apr 1985
Graduation _____	Oct 1971

Present position, institution, starting date: Assoc. Professor, Univ. Coimbra, Dec 1990

Previous positions, institutions, dates in reverse chronological order

Associate Professor _____	Dec 1990
Auxiliary Professor _____	Apr 1985
Assistant Professor _____	May 1973

Other

Member of the administration board of the Physics Department since 1996.

Co-founder of ADDF (Association for the Development of the Physics Department)

President of the Scientific Board of the Physics Department 1993/94.

Main Scientific Areas of Research

Signal Processing, Optics, Electronics.

University-Industry Interfaces, Innovation, Biomedical Engineering.

10 Main Publications

New ADC Circuit for Nuclear Spectroscopy Based on Digital Signal Processing Techniques.

Carlos M.B.A. Correia, José Carlos Martins. Nuclear Instrum. and Methods in Physics Research A290 (1990), 445-449.

On Site Developed Components for Control and Data Acquisition on Next Generation Fusion Devices.

C.A.F. Varandas, B. Carvalho, **Carlos M. Correia**, C. Loureiro, J.L. Malaquias, A. Rodrigues, J. Sousa. Fusion Engineering and Design 36 (1997) 167-176.

Determining the Effective Number Of Bits of High Resolution Digitizers.

J. Basílio Simões, Custódio F. M. Loureiro, Jorge Landeck, **Carlos M. Correia**.

IEEE Transactions on Nuclear Science, vol. 44, no. 3, (1997) 407-410.

The 32 bit Timing Unit of a Real-Time Event-Based Control System for a Nuclear Fusion Experiment.

J. Sousa, A. Combo, A. Batista, **Carlos M. Correia**, C.A.F. Varandas, D. Trotman and J. Waterhouse. IEEE Trans. Nuclear Science, vol 45, no 4, Aug. (1998), 2052-2056.

Two fast, 12 bit, multiple differential input, VME Transient Recorder Systems.

Carlos M. Correia, A. Combo, M. Correia, J.B. Simões, P. Coelho, B.B. Carvalho, J. Sousa e C.A.F. Varandas. Review of Scientific Instruments, vol.20, no 1, (1999), pp 509-512.

Multiple DSP System for Real Time Parallel Processing and Feedback Control on a Fusion Experiment.
A.P. Rodrigues, **Carlos M. Correia**, C.A.F. Varandas, F. Schneider.
Fusion Engineering and Design, 43 (1999) 401-405.

Pulse Processing Architectures.

J. Basílio Simões and **Carlos M. Correia**.
Nuclear Instruments and Methods in Phys. Res., A 422 (1999) 405-410.

A Mixed Analog-Digital Pulse Spectrometer.

João M. R. Cardoso, J. Basílio Simões and **Carlos M. Correia**.
Nucl. Instr. and Meth. in Phys. Res. A 422 (1999) 400-404.

Testing High Resolution Digitizers Using Conventional Signal Sources

J. Basílio Simões, Custódio F. M. Loureiro, Jorge Landeck, **Carlos M. Correia**.
Measurement Science and Technology, vol. 9, (1998) 6-11.

Nonlinearity of a Data-Acquisition System With Interleaving/Multiplexing.

J.B. Simões, J. Landeck, **Carlos M. Correio** IEEE Trans.
Instrum. Meas., vol 46, no 6, (1997) 1274-1279.

A integrated System for Nuclear Data Acquisition

José Luis Malaquias, Pedro Almeida, Paulo Amilcar, Nuno Cruz, **Carlos M. Correia**.
IEEE Transactions on Nuclear Science, vol 44, no. 3, (1997), pp 411-415.

Antonio Dias de Figueiredo is a Full Professor of Informatics Engineering at the Faculty of Science and Technology of the University of Coimbra, Portugal, since 1984. He obtained his Ph.D. in Computer Science from the University of Manchester, U.K., in 1976. His current research and consulting interests centre on *Business Information Systems, Knowledge Management and Organizational Learning*, and *ICT in Learning and Education*. For a period of six years he represented Portugal in the Intergovernmental Informatics Programme of UNESCO, where he was elected Vice-President for the Western Europe Region (1994/1996). At the invitation of the NATO Science Committee, Brussels, he integrated for a period of four years the NATO Special Programme Panel on Advanced Educational Technology. He has participated in various European projects, both as a partner and as a science advisor, and acted on various occasions as a consultant to the European Commission in matters regarding the definition of strategies for information and communications technologies in education. At the invitation of the European Commission, he contributed in 1995 to the preparation of the White Book on Education and Training for the XXI Century. He has collaborated with OECD on various occasions in initiatives regarding Information and Communication Technologies in Education. He was the Chairman of PROMETEUS (PROMoting Multimedia access to Education and Training in European Society), a Memorandum of Understanding promoted by the European Commission, between March 2000 and March 2001. He was awarded an *Honoris Causa* by Universidade Aberta, the Portuguese Open University, in 1997, and the *Sigillum Magnum* of the University of Bologna, Italy, in 2000. He is the author of over 170 papers and presented over 180 communications at national and international conferences. He has integrated over 60 organising and science committees of national and international conferences. He is currently a member of the editorial board of *Information & Management*, an Elsevier North-Holland journal, and of the *Portuguese Management Journal*.

Name: Domingos Xavier Filomeno Carlos Viegas

Professional Degree: Full Professor

Birth Date: 24/08/1950 **Sex:** Male

Nationality (City, Place): Portuguese (Índia - Goa)

Academic Degrees

Institution and Place	Degree	Year	Area
Instituto Superior Técnico	Graduation	1972	Mech. Engineering
Univ. Coimbra - Coimbra	Doctorate	1981	Mec. Eng. (Aerodynamics)
Univ. Coimbra - Coimbra	Associate Professor	1991	Mec.Eng. (Aerodynamics)
Univ. Coimbra - Coimbra	Full Professor	1995	Mec.Eng. (Aerodynamics)

Main Area of Research

Industrial Aerodynamics, Wind engineering, Forest Fires.

Relevant Activities

- Head of Fluid Mechanics Group of the Mechanical Engineering Dep. of the Univ. of Coimbra.
- Director of the Association for the Development of Industrial Aerodynamics (ADAI).
- Director of the Forest Fire Laboratory of ADAI.
- Coordinator of several research projects and contracts in the field of wind engineering and forest fire propagation.
- Coordinator of several scientific meetings and short-courses on the above mentioned subjects, including three International Conferences on Forest Fire Research, held in Coimbra in November 1990, 1994 and 1998.
- Associate Editor of the Journal of Wildland Fire.
- Invited expert in the area of Forest Fires by European Union.
- Invited lecturer on Forest Fires in several International meetings.
- Member of the Steering Committee of the DELFI Concerted Action.

RELEVANT WORKS IN THE FIELD OF FOREST FIRES

- "Experimental Study of the Flow Around a Set of two Dimensional Sinusoidal Hills" - with A.D. Ferreira, International Journal Wind Engineering Industrial Aerodynamics, 54/55 (1995) 173-181.
- "On the temperature distribution inside a tree under fire conditions" - with J.J. Costa, L.A. Oliveira and L.P. Neto" - Int. J. Wildland Fire 1 (1) 73-78, 1991.
- "Wall Shear-Stress as a Parameter to Correlate the Rate of Spread of a Wind Induced Forest Fire" - with L.P. Neto" - Int. J. Wildland Fire 1 (3) 177-188, 1991.
- "A Broad Syntesis of Research on Physical Aspects of Forest Fires" - with J.C. André, A.M.G. Lopes, Cadernos Científicos sobre Incêndios Florestais, N. 3, 1992.
- "Moisture Content of Fine Forest Fuels and Fire Occurrence in Central Portugal," - with M.T.S. Pais Viegas and A.D. Ferreira - Int. J. Wildland Fire 2(4) 69-86, 1992.
- "Prediction of Eclasion and Propagation of Forest Fires and Associated Risk for Human Life" - with G. Bovio - European Conference on Natural Risks and Civil Protection, Belgirate, Out. 1993.

- "On the Evolution of a Linear Fire Front in a Slope" – with V.Varela and C.P. Borges, Proceedings Int. Conf. Forest Fire Research, Coimbra, Nov. 1994.
- "Numerical Predictions on the Soil Thermal Effect under Surface Fire Conditions" - with L.A. Oliveira, V. Varela and A.M. Raimundo, International Journal of Wildland Fire 7(1): 51-63, 1997.
- "A Relationship Between Rainfall and Burned Area for Portugal" - with Teresa Viegas - Int. J. Wildland Fire 4(1) 11-16, 1994.
- "Some Thoughts on the Wind and Slope Effects on Fire Propagation" - Letter to the Editor, Int. Journal of Wildland Fire, 4(2): 63-64, 1994.
- "Numerical Simulation of Turbulent Flow and Fire Propagation in Complex Topography" - with A.M.G. Lopes and C.M. Sousa - Numerical Heat Transfer Journal, 1994.
- Editor "Proceedings of the II International Conference on Forest Fire Research" - November de 1994.
- Editor "Proceedings of the III International Conference on Forest Fire Research" - November de 1998.
- "Convective Processes in Forest Fires" - D.X. Viegas - NATO 17-27 Março de 1997, Pforzheim - Germany.
- "Weather, Fuel Status and Fire Occurrence: Predicting Large Fires". Large Forest Fires, pp. 31-48, edited by J.M. Moreno, 1998.
- "Forest Fire Propagation" - D.X. Viegas - Publicado no Philosophical Transactions R. Soc. Lond. A, (1998) 356, 2907-2928.
- "Innovations and Solutions in Fire Behaviour Forecasting Issues" - D.X. Viegas - International Symposium Forest Fires: Needs & Innovations, 18-19 November 1999, Athens-Greece.

Participation in the organization of meetings related to Forest Fires:

I International Conference on Forest Fire Research	1990	Coimbra
II International Conference on Forest Fire Research	1994	Coimbra
European School on "Forest Fire Risk and Management"	1992	Halkidiki
International Conference on Natural Risks and Civil Protection	1993	Belgirate
Workshop on Forest Fire Behaviour	1996	Luso
Advanced Study Course on Wildfire Management	1997	Athens
III International Conference on Forest Fire Research	1998	Luso
Delfi Concerted Action – "International Symposium Forest Fires: Needs & Innovations"	1999	Athens

Name: Maria Teresa Freire Vieira

Place and Date of Birth: Oporto, 10th of July of 1949.

Nationality: Portuguese

Institutional Address: Grupo de Materiais, Departamento de Engenharia Mecânica, FCTUC PoloII, Pinhal de Marrocos, 3030 Coimbra, Portugal.

Academic degrees:

- Aggregation on Mechanical Engineering (Materials Science), 2000 – University of Coimbra, Portugal
- Doctorat d’Etat en Sciences Physiques (1983) – University of Paris XI (Centre d’Orsay), “Trés Honorable avec felicitations du Jury”.
- Diplôme d’Études Approfondies (D.E.A.) Of Special Metallurgy, Structural Transformations (1978) – University of Paris Sud and Institut National des Sciences et Techniques Nucleares (Saclay) – “Assez Bien”.
- Degree in Metallurgical Engineering (1974) –University of Oporto, Portugal.

Current professional status

- Full Professor of the Department of Mechanical Engineering of the University of Coimbra, Portugal
- Scientific Director of Institute of Materials Science and Engineering and Surfaces, Coimbra, Portugal
- Head of the Group of Materials and Surface Engineering of Department of Mechanical Engineering of the University of Coimbra, Portugal
- Director of the Laboratory of Materials and Wear (LED&MAT) of Instituto Pedro Nunes, Coimbra, Portugal

Specialisation domain

Science and Engineering of Materials and Surfaces

Other domains

- Non-lubricated wear of materials.
- Wood particleboards.
- Recovery of raw materials.
- Ceramic injection.

Publications (1996-2000)

“Tribological behaviour at elevated temperature of thin physical vapour deposited coatings”
K. Abouryak, S. Fayeulle, L. Vincent, C. Ribeiro, A. Cavaleiro, M. T. Vieira
Surface and Coatings Technology 80 (1996) 171-175

“The ultimate vacuum pressure and the characteristics of sputtered coatings”
A. Cavaleiro, M. T. Vieira, F. Ramos, J.P. Dias
Thin Solid Films, 290-291 (1996) 238-242

“Thin-Film Gold Electrodes Produced by Magnetron Sputtering. Volumetric Characteristics and Application in Batch Injection Analysis with Amperometric Detection”
Ana Maria Oliveira Brett, Frank-Michael Matysik and M. Teresa Vieira
Electroanalysis, 9 (1997) 209-212

“The influence of the interstitial element on tribological behaviour of tungsten coatings”
J. M. Castanho, M. T. Vieira
Surface and Coatings Technology, 102 (1998) 50-62

“Amorphous phase forming ability in (W-C)-based sputtered films”
B. Trindade, M. T. Vieira and E. Bauer-Grosse
Acta Materialia, 46, 5 (1998) 1731-1739

“Crystallisation kinetics of amorphous W-Co-C sputtered films”
B. Trindade, M. T. Vieira
Thin Solid Films, 322 (1998) 68-73

“Applications of Modified Silica Coatings to Biosensors – a Previous Study”
Ana Paula Piedade and M. Teresa Vieira, M. Helena Gil
Surface Modification Technologies XI (1998) 1057-1064

- “Mechanical behaviour of sputtered M-Fe-C (M=Cr, Mo, W) carbides”
B. Trindade, M. T. Vieira, A. M. Amaro, J. S. Cirne
Fundamentals of Nanoindentation and Nanotribology, Materials Research Society, 522 (1998) 305-310
- “The influence of silver on the structure and mechanical properties of (TiAl)- based intermetallics”
M. T. Vieira, B. Trindade, A. S. Ramos, J. V. Fernandes, M. F. Vieira
Thin Solid Films, 343-344 (1999) 42-45
- “Optimization of the sintering process of raw material wastes”
M. T. Vieira, L. Catarino, M. Oliveira, J. Sousa, J. M. Torralba, L. E. G. Cambronero, F. L. González-Mesones and A. Victoria
Journal of Materials Processing Technology, 4062 (1999) 1-5
- “The influence of ductile interlayers on the mechanical performance of tungsten nitride coatings”
M. T. Vieira and A. S. Ramos
Journal of Materials Processing Technology, 4109 (1999) 1-6
- “Deposition and characterization of fine-grained W-Ni-C/N ternary films”
A. Cavaleiro, B. Trindade and M.T. Vieira
Surface Coatings and Technology, 116-119 (1999) 944-948
- “Deposition of AlN films by rf reactive magnetron sputtering: effect of processing parameters”
J.C. Oliveira, A. Cavaleiro and M.T. Vieira
Surface Modification and Technologies XIII (1999) 217-224
- “Structure and Properties of Sputtered TiAl-M (M=Ag,Cr) Thin Films”
C.Coelho, A.S.Ramos, B.Trindade, M.T.Vieira, J.V.Fernandes and M. Vieira
Surface Coatings and Technology 120-121 (1999) 297-302
- “Characterisation of modified sputtered (TiAl)-based intermetallic materials doped with silver and chromium”
C.Coelho, A.S.Ramos, B.Trindade, M.T.Vieira, J.V.Fernandes and M. Vieira
Key Engineering Materials, 188 (2000) 37-44
- “The influence of Er doping of Al-N sputtered coatings on mechanical properties”
J.C. Oliveira, A. Cavaleiro and M.T. Vieira
Surface Coatings and Technology 132(1) (2000) 99-104
- “An approach using thin films as a predictive way to produce new bulk materials”
M.T.Vieira, A.S.Ramos, B.Trindade, , J.V.Fernandes and M. Vieira
Surface Coatings and Technology
- “The influence of nitrogen on the mechanical behaviour of multilayer coatings”
M.T.Vieira, C.M. Pereira and J.M.Castanho
Surface Coatings and Technology
- “The effect of titanium-based interlayer on adhesion of ceramic coatings”
M.T.Vieira, S. Ramos and S.Ramos
Surface Coatings and Technology (in press)
- “Application of surface modified silica thin films to biosensors”
Ana Paula Piedade, M.T.Vieira and H. Helena Gil
Surface Modification and Technologies XIII (2001)
- “A new tensile test procedure to evaluate the ductility of thin films: experimental results and numerical validation”
J.M.Antunes, L.F.Menezes, M.F.Vieira, J.V.Fernandes, B. Trindade, A.S.Ramos and M.T.Vieira
International Journal of Mechanical Science (in press)

Name: **João Manuel Domingues Perdigão**

Birth Place: Mira

Date of Birth: 16 January 1951

Marital status: Married

Nationality: Portuguese

Residence: Urbanização Cruz Vale do Seixo, lote 30 - Coimbra

Department: Departamento Engenharia Electrotécnica e de Computadores, Polo II, 3030 Coimbra

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Academic degrees:

- Graduate in Engenharia Electrotécnica (Electrical Engineering), July 1974, by Faculty of Engineering of Oporto University (FEUP)
- MsC (Diplôme d'Études Aprofondies -DEA), July 1982, by University of Valenciennes - France
- PhD (Thèse de 3^{eme} Cycle), July 1984 by University of Valenciennes - France
- PhD degree, December 1984 by University of Coimbra
- Agregação in Electrical Engineering, 1996 by University of Coimbra

Educational Activity:

- Assistant at the Departamento de Engenharia Electrotécnica da Faculdade de Ciências e Tecnologia da Universidade de Coimbra from 1974-1984.
- Professor Auxiliar at the Departamento de Engenharia Electrotécnica da Faculdade de Ciências e Tecnologia da Universidade de Coimbra from 1984-1988
- Professor Associado (Associate Professor) at the Departamento de Engenharia Electrotécnica da Faculdade de Ciências e Tecnologia da Universidade de Coimbra from 1988-1997.
- Professor Catedrático (Full Professor) at the Departamento de Engenharia Electrotécnica da Faculdade de Ciências e Tecnologia da Universidade de Coimbra from 1988-1997.

Institutional Position:

- President of the Department of Electrical Engineering and Computers

Field of education:

- Electrical Engineering (Electrical Cicuits, Waves and Propagation, Non Destructive Testings
- Responsible for the Course of Didactic on Electrical Engineering for Teachers of undergraduate schools. 1988/89 (1 teacher), 1989/90 (8 teachers), 1990/91 (2 teachers) 1992/93 (1 teacher) and 2000 (2 teachers)

Field of interest:

- Non Destructive Testing by Ultrasound
- Sensors
- Material characterization
- Ceramics

Languages: Portuguese, French and English

Publications:

- A R Ferreira, M Santos, N Fernandes, J Velho, **J M Perdigão**, "Ultrasonic Control of Quartzites: Attenuation and Velocities Discrepancies Interpretation", Materials Evaluation, vol.59(6), pp.779-782 (2001).
- A.R.Ferreira, **J.M.Perdigão**, C. de Francisco, J.Ignacio de La Torre "Electrical Behavior of Mg_xSrTi_{1-x}O₃ Ceramics", 12th International Symposium on Integrated Ferroelétrics - ISIF2000 Aachen, Alemanha, Mar (2000)
- M Santos A R Ferreira, , N Fernandes, **J M Perdigão**, "Detection and Classification of Defects in Thin Structures Using Lamb Waves", Acústica 2000 – II Congresso Iberoamericano de Acústica, Oct 2000.
- J Certo, C S Furtado, A R Ferreira, and **J M Perdigão** "A Pulsed method for measuring the conductivity on solid ionic conductors", Journal of European Ceramic Society, Vol.19, pp.853-855, (1999)
- J Certo, C S Furtado, A R Ferreira, and **J M Perdigão**, "Na-β Alumina Processing by a Na₂CO₃ Precipitation Method", International Journal of Ionic, nº 1&2, Vol.4, pp.124-128, (1998)

Identification

Name: **António José Barreto Tadeu**

Date and Place of Birth: June, 20th of 1963, Angola (Portugal); Nationality: Portuguese

Institutional Address:

Dept. of Civil Engineering
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3030-290 COIMBRA
PORTUGAL

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Present and Past Positions

- Associate Professor at the Civil Engineering Dept. of the University of Coimbra (1999-).
- President of the Scientific Committee of the Civil Engineering Dept. (1999-)
- Chairman of the Regional Board of Civil Engineers from the Portuguese Charter of Engineers (2001-).
- Head of the Constructions Laboratory at the Civil Engineering Dept. of the University of Coimbra (1992-).

Scientific Areas of Research and Interest

- Applied Acoustics, Non-destructive testing of materials using wave propagation, Fire safety.

Experience in the Organization of Conferences and Seminars (as a member of Organizing and or Scientific Committees)

- “III Encontro de Mecânica Computacional”, Coimbra, 1992.
- “2º Encontro sobre Sismologia e Engenharia Sísmica”, Porto, 1994.
- “XXV IAHS World Housing Congress”, Porto, 1998.
- “MIT On The Road” em Coimbra, 1998.
- “Second European Boundary Element Method Symposium – EUROBEM II”, Southampton, UK, 1998.
- “IV Simpósio de Hidráulica e Recursos Hídricos dos Países de Língua Oficial Portuguesa”, Coimbra, Maio de 1999.
- “Primeiras Jornadas de Segurança – Universidade de Coimbra”, Coimbra, 2000.
- ICES – International Conference in Computational Engineering & Sciences 2001”, Puerto Vallarta, México,
- “Boundary Element Methods – BEM24”, Sintra, 2002.
- “Hydrosoft 2002”, Montreal, Canada, 2002.
- “Acoustics 2003”, Cadiz, Spain, 2003.
- “XXXI IAHS World Housing Congress”, Coimbra, 2003.

Name - **Nelson Edgar Viegas Rodrigues**

Place and Date of Birth - Lubango (Angola), 09/05/1960.

Marital status - Married

Nationality - Portuguese

Address – Departamento de Ciências da Terra, Largo Marquês de Pombal, 3000-272 Coimbra

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Qualifications (academic degrees, universities, date and classifications)

BSc in Mining Engineering, University of Coimbra, 1983, 16 out of 20.

MSc in Computer Sciences – Operations Research, University of Coimbra, 1991, excellent.

PhD in Mining Engineering, University of Exeter(UK), 1994, approved.

Equivalence to PhD, University of Coimbra, 1995, approved with distinction.

Professional and academic experience (institutions/positions/dates)

Portuguese Navy, Navy Officer, 1984/86.

University of Coimbra, Mining Engineering Department, junior lecturer, 1986/90.

INESC, researcher of Operations Research, 1989/90.

CSM Associates Ltd, collaborator, Tracers in geothermics, 1991/94.

University of Coimbra, Earth Sciences Department, lecturer, 1990/95.

University of Coimbra, Earth Sciences Department, Assistant Professor, 1995 – 2000.

University of Coimbra, Earth Sciences Department, Associate Professor, since 2000.

Affiliations

Portuguese Charter of Engineers; Portuguese Association of Hydrological Resources; Society of Mining Engineers (SME)

Domain of Specialisation

Tracers in fractured media. Modelling.

Other domains

Network optimisation with restrictions.

Current research interests

Hydrogeology of fractured formations. Modelling and contaminants. Process optimisation.

Some examples of publications:

Rodrigues, J.C., Rodrigues, N.E.V., Climaco, J., 1993, Solving an urban routing problem using heuristics - a successful case study, *Belgian Journal of Operations Research, Statistics and Computer Science*, Vol. 33, 1-2, pp 19-32.

Rodrigues, Green, A.S.P, Barley, R., 1995, Modelling Tracer Tests in the Rosemanowes HDR Reservoirs, *Geothermics*, Vol 24, no 3, June 1995, pp 375-384, special issue “Hot Dry Rock Modelling Activities Within Europe”

Hicks, T., Pine, R.J., Willis-Richards, J., Xu, S., Jupe, S., Rodrigues, N.E.V., 1996, A Hydro-thermo-mechanical Numerical Model for HDR Geothermal Reservoir Evaluation, *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, vol 33, no 5, pp 499-511.

Rodrigues, N.E.V., 1998, Characterisation of fractured formations (*in portuguese*), *4º Congresso da Água*, Março de 1998, Lisboa.

Rodrigues, N.E.V., Cruz, F.F., 2000, Experimental characterisation of dispersion in fractured media, *Tracers and Modelling in Hydrogeology*, Liege, Bélgica, Maio 2000.

Rodrigues, N.E.V., Correia, C., Dias, J.M.M., 2000, Pumping tests in fractured formations – Caldas da Felgueira Spa (*in portuguese*), *Recursos Hídricos*, Revista da APRH, vol. 21, nro. 3, p. 59-68.

Identification

Name: **Pedro Manuel Tavares Lopes de Andrade Saraiva**

Date and Place of Birth: October, 27th of 1964, Coimbra (Portugal); Nationality: Portuguese

Institutional Address:

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3030-290 COIMBRA
PORTUGAL

Telephone: 351-239-798700; Fax: 351-239-798703; e-mail: eq1pas@eq.uc.pt

Present and Past Positions

- Assistant Professor at the Chem. Engineering Dept. of the University of Coimbra (1993-).
- President of the Installation Committee for PRODEQ-Association for the Development of Chemical Engineering (2000-)
- Vice-President of the Regional Board for the Charter of Engineers (2001).
- Chairman of the Regional Board of Chemical Engineers from the Portuguese Charter of Engineers (1998-2001).
- President of the Education Committee of the Portuguese Quality Council (1998-2000).
- Founder and Partner of QUAL-Quality Management Consulting Firm (1993-).
- President of the Feigenbaum Medal Award Committee for ASQ-American Society for Quality (2000-).

Scientific Areas of Research and Interest

Process Systems Engineering and Quality Management (in a broad sense, covering design, data generation and analysis, environmental issues, organizational aspects, etc.), including applications to teaching and education.

Awards

- 1998 Feigenbaum Award of the American Society for Quality (ASQ)

Experience in the Organization of Conferences and Seminars (as a member of Organizing and or Scientific Committees)

- ▶ *CHEMPOR '2001 (8th. International Conference of Chemical Engineering)*, Aveiro (2001).
- ▶ *I National Quality Congress*, Lisboa (2000).
- ▶ *25th National Quality Colloquium*, Porto (2000).
- ▶ *24th National Quality Colloquium*, Lisboa (1999).
- ▶ *23rd National Quality Colloquium*, Porto (1998).
- ▶ *The new world: MIT's contribution to technology, management and the environment*, Lisboa (1998).
- ▶ *Science Frontiers: recent developments and future challenges*, international conference including 3 Nobel Prizes as keynote speakers, Coimbra (1998).
- ▶ *21st National Quality Colloquium*, Lisboa (1996).
- ▶ I (Lisboa, 1983), II (Porto, 1984) and III (Coimbra, 1985) *National Youth Science Meetings*.