



Universidade do Minho
Escola de Engenharia



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Highlight

Advanced Grant from European Research Council granted to Rui Reis



Professor Rui Reis, director of the Research Group on Biomaterials, Biodegradables and Biomimetics (3B's) of the EEUM and President of the Associated Laboratory ICVS/3B's of the UMinho, has received one of the largest and most prestigious grants ever to a Portuguese researcher. It is an Advanced Grant from the European Research Council (ERC), with the project ComplexiTE – An integrated multidisciplinary tissue engineering approach combining novel high-throughput screening and advanced methodologies to create complex biomaterials-stem cells constructs, to which 2,35 million euros were attributed.

The ERC individual grants, based only on scientific excellence, are currently the most prestigious type of scientific project in any scientific area. The grant amount will allow, during 5 years, the development of research work in the area of tissue engineering, namely a unique and multidisciplinary approach which allows combining advanced methodologies with innovative technologies of HTS (high-throughput screening) in order to create complex structures of biomaterials and stem cells.

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Advanced Grant from European Research Council granted to Alfons Stams



Professor Alfons Stams, from the Wageningen University, invited researcher of the Centre for Biological Engineering (CEB) of the EEUM since 2010, was awarded an Advanced Grant of the European Research Council (ERC), in the area of Life Sciences, of a total amount of 2,5 million euros.

The project, entitled “Novel anaerobes for a biobased economy”, is a joint project between the University of Wageningen and the UMinho, which aims at applying knowledge of anaerobic microbial communities for a biobased economy and study novel anaerobic microorganisms.

The funding will be divided between the two institutions, and the UMinho will receive around 1 million euros.

Professor Alfons Stams is currently working with the BRIDGE – Bioresources, Bioremediation and Biorefinery group at the CEB.

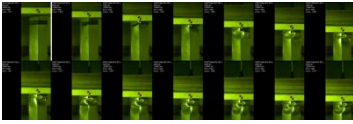
According to the researcher, the biotechnological potential of microbial diversity is huge and this project will study novel anaerobes for energy conservation and production of valuable compounds.

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Awards

Researchers of the CT2M awarded by APAET – Portuguese Association for Experimental Mechanics

Porto, 30th November

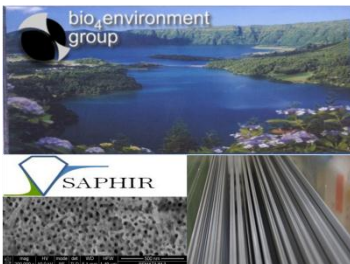


The researchers Pedro Pereira, Nuno Peixinho, Dina Dimas, Delfim Soares and Cândida Vilarinho, from the Centre of Mechanical and Materials Technology (CT2M) of the EEUM, were granted the Eng^o Cruz de Azevedo Award by the APAET – Portuguese Association for Experimental Mechanics.

The APAET award is granted annually to the paper which is considered to have the most scientific and technical merit published in the “Experimental Mechanics” journal. The award ceremony for the 2010/2011 edition took place recently, during which the award was granted to the CT2M’s researchers for their paper “Experimental Study on Impact Energy Absorbing Elements using Configurable Thermal Triggers”. The awarded paper is the result of a research project coordinated by Professor Nuno Peixinho, from the Department of Mechanical Engineering (DEM) of the EEUM, entitled “Improvement of impact energy absorption in aluminium structures using configurable thermal-induced triggers”, financed by the Portuguese Foundation for Science and Technology.

Researchers of the CEB win Environmental European Press Award 2012 and National Environmental Innovation Award

António Guerreiro de Brito, professor at the Department of Biological Engineering (DEB) of the EEUM, and Daniel Ribeiro and Gilberto Martins, PhD researchers of the group bio4Environment of the Centre for Biological Engineering (CEB) of the EEUM, form the team awarded with the Bronze Innovation Award – Environmental European Press Award, which corresponds to third place in this competition, with the project SAPHIR – Solutions for Algae-Phosphorus Interaction Rupture. The final selection was completed among 50 applicants from 17 countries. The award was presented to the research team last 26th November, in France, during Pollutec 2012.



The project SAPHIR has also won the 2012 edition of the National Environmental Innovation Award in Portugal, which was presented on the 4th December.

SaphirSolution’s algae-phosphorus interaction rupture solution for wastewater treatment comprises an integrated system for eutrophication processes elimination by using nanoporous alumina membranes phosphorous adsorption capability. SAPHIR promotes a quit reversion on the eutrophication processes when introduced into lakes or other natural water bodies. It is also applicable in wastewater treatment plants.

The project is being developed in partnership by the UMinho and ION – Environment and Business Consulting, counting on the support of the company Alumínios Navarra. The partners have also filed a joint patent request.

Students of the EEUM win Technological Innovation Award

Lisbon, 3rd December



The MSc dissertation of the students Tiago Marques and João Lacerda, both from the MSc in Biomedical Engineering, supervised by professors Eurico Seabra and Luís Ferreira da Silva, from the Department of Mechanical Engineering (DEM) of the EEUM, won the Technological Innovation Award “Engenheiro Jaime Filipe”, promoted by INR – National Institute for Rehabilitation. The ORT REHABILITATION DEVICE is applicable to postural correction. The award ceremony took place during the National Celebration of the International Day of Persons with Disabilities, promoted by INR. The award intended to divulge projects which promote accessibility in areas such as communication, research and quality of life.

Course “Executive Training on Foundations of Government Information Leadership” in partnership with the United Nations University

Campus of Gualtar, 17th to 21st December



The course “Executive Training on Foundations of Government Information Leadership”, a joint organization from the Department of Informatics (DI) of the EEUM and the E-Gov Center of the United Nations University (UNU), took place at the DI. The course gathers twenty trainees from several countries, from Georgia to South Korea, from Mozambique to the Dominican Republic, with top leading positions in governmental agencies and administration. The initiative is a result of the partnership between the DI and the International Institute of Software Technology of the UNU, based in Macau, which has been leading to joint organization of events and PhD co-supervision.

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Paulo Flores elected coordinator of European Scientific Committee of the IFToMM



Professor Paulo Flores, from the Department of Mechanical Engineering (DEM) of the EEUM, was elected coordinator of an European Scientific Committee for Mechanism and Machine Science of the IFToMM - International Federation for the Promotion of Mechanism and Machine Science. The committee, directed by a Portuguese researcher for the first time, aims at promoting research and development in the technical-scientific domain of Mechanisms and Machines. Paulo Flores, a member of this committee since 2010, was elected for the position for the period 2013-2014, during the annual committee meeting, which took place at the University of Cantabria, Spain.

EEUM cooperates with MonteAdriano to develop sustainable bituminous mixtures



The EEUM, through TecMinho, an interface of the UMinho, celebrated a contract agreement with the company Betominho, of the Group MonteAdriano, S.A., aiming at supporting the development of sustainable bituminous mixtures.

The QREN project, entitled “Energy and Environmental Efficiency - Improvement of Bituminous Mixtures, and Reduction of Greenhouse Gas Emissions”, aims at promoting the production of bituminous mixtures with high RAP incorporation and using Warm Mix Asphalt (WMA) technologies. This will allow an improvement on the energy and environmental efficiency of this type of activity (total project budget of 3 million euros).

The part of the project to be developed by the EEUM has a total amount of 255 thousand euros. The project will be developed for the next 18 months, during which the entities (UMinho, TecMinho, Betominho and MonteAdriano) will develop new bituminous mixtures, which will then be applied in road segments to be validated in real traffic conditions. Professor Hugo Silva (project coordinator), Professor Joel Oliveira, Professor Paulo Pereira and Eng. Carlos Palha, from the Department of Civil Engineering (DEC) of the EEUM, constitute the project team.

Delegation of the University of Massachussets Lowell visits the EEUM

Campus of Gualtar and Azurém, 6th December



The EEUM welcomed a delegation of the University of Massachussets Lowell (USA), a worldwide renowned institution for its education and research activities. The UMass is positioned in 56th place on the 2010 World University Ranking published by The Times of London and attracts a total research funding of around 500 million dollars annually. The delegation was composed by the Rector, Professor Ahmed Abdelal, Professor Julie Chen, Vice Provost for Research, Professor of Engineering, and Mary Robbins, Special Assistant to the Provost for International Affairs. The visit aimed at identifying common interests which could lead to the establishment of a partnership in research, cooperation and academic mobility. The delegation had the opportunity to visit and discuss the EEUM's competences on Biotechnology, Bioengineering, Polymer Engineering and Nanotechnology.

Bacteriophage Biotechnology Group searches for the largest destroyer of pathogenic bacteria



The research project “Innovative viral therapies by genetic modification of bacteriophages” is currently being developed by the Bacteriophage Biotechnology Group of the Centre of Biological Engineering (CEB) of the EEUM, in collaboration with a Synthetic Biology group from the MIT – Massachusetts Institute of Technology. There are more and more “multi-resistant” bacteria, which are able to dodge more than three classes of antibiotics, and therefore constitute danger to public health. Similar situations result in uncontrolled infectious diseases, which could lead to the death of thousands of people. This scenario may be altered in the next few months with the development of a super-phage which is able to fight these microbes. It is predicted that the solution will be ready by the end of 2013, with immediate benefits regarding the spending in the public health sector: “The annual costs associated with the resistance to antibiotics are approximately two billion euros. This would be another way to reduce the spending with health”, states Joana Azeredo, group coordinator and professor at the Department of Biological Engineering (DEB) of the EEUM and researcher at the CEB.

CVR wants to transform agriculture waste into biogas



The Centre for Waste Valorisation (CVR), an interface of the UMinho, participates in the European project AGROGAS, which aims at valuing waste from agricultural, poultry and agro industrial sectors through the local production of biogas, in order to reduce the environmental impact and energy dependency especially from rural areas.

The project counts on the participation of other several European institutions such as the *Agencia Extremeña de la Energía*, the *Fundación General de la Universidad de Salamanca*, the *Fundación Fundagro* (all from Spain), the *Institut National Polytechnique de Toulouse* and the *École Supérieure des Technologies Industrielles Avancées* (both from France).

Filipe Samuel Silva publishes book on the new role of universities



Filipe Samuel Silva, professor at the Department of Mechanical Engineering (DEM) of the EEUM, has recently published the book “How to place University in the centre of progress in Portugal”. The publication aims at answering questions related to the evolution of companies, the valorization of engineering profession, globalization, the growing competitiveness of economies and the urgent need to upgrade the pedagogical process of higher education institutions. “It is not enough to teach traditional specific competences. It is urgent to provide the students with a larger added value to society, and to ourselves, which consists in the capacity for them to properly lead with their basic skills”, the author refers.

The book, published by Publindústria, is divided in two sections: the first analysis the present situation and the changes in course worldwide, including the urging shifts in national higher education; the second is a practical proposal for the implementation of a culture of creativity, innovation and entrepreneurship in an engineering cycle of studies.



Paulo Flores publishes book on cinematic and dynamic analysis of mechanisms

The book “Análise Cinemática e Dinâmica de Mecanismos – Exercícios Resolvidos e Propostos” (Cinematic and Dynamic Analysis of Mechanisms – Completed and Proposed Exercises) is a result of the author’s work, who has been dedicated to the education and research on this field of studies since 1997. The main motivation to write the book was the lack of Portuguese language books on cinematic and dynamic analysis of mechanisms available in the market, particularly concerning applied exercises. The book entails a set of completed applied exercises in the domain of Machinery and Mechanisms Theory. It is therefore a support text for higher education faculty and students, which could also be useful to those who are interested in the study of mechanisms.



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