

# Researchers of the Month 2013





### **NUNO BORGES DE CARVALHO**

*Freedom of thought is the best contribution we can give to science*

Nuno Borges Carvalho received the Diploma and Doctoral degrees in Electronics and Telecommunications Engineering from the University of Aveiro (UA) in 1995 and 2000, respectively. He is currently Full Professor and a Senior Research Scientist of the Institute of Telecommunications, University of Aveiro, where he coordinates the wireless communication thematic area and the Radio Systems Group ([radiosystems.av.it.pt](http://radiosystems.av.it.pt)).

His main perspectives as a researcher involve being able to maintain the high level quality UA has achieved in Telecommunications research, which, in his specific case, involve the two emerging areas of Software Defined Radio and Wireless Power Transmission. He strongly believes in interdisciplinary collaboration, in order to be able to maximize some of the main basic components used in RF electronics, and exemplifies with the cross disciplinary group of research labs at the campus.

From his point of view, the independence that universities claim for themselves could be applied to individual departments and research unities as much as possible, allowing the initiative from each individual to promote excellence in the University.



### **JORGE SARAIVA**

*One of the important variables of the equation to carry out international top level research is the human resources.*

Jorge Saraiva received his Diploma in Biochemistry, in 1989, from the University of Coimbra and his Ph.D. in Biotechnology (specialization in Food Science and Engineering) from the College of Biotechnology (ESB), Portuguese Catholic University (UCP), in 1994. He was Invited Assistant Professor at University of Porto before joining University of Aveiro in 1998 as Assistant Researcher, where he is member of the Food Science and Biochemistry research group of the Research Unit of Organic Chemistry, Natural and Agro-food Products (QOPNA).

His research interests are focused in the area of Novel Food Preservation and Processing Technologies, particularly non-thermal food preservation processes, with emphasis in the use of High Pressure Processing (HPP) for: cold pasteurization of foods, new food sterilization methods, and food quality improvement (functional and sensorial properties). HPP is currently the fastest growing food preservation technology at industrial level (since the early 90's when the first commercial food product reached the market), and this research area was defined as strategic at UA, based on its High Pressure Based Multidisciplinary Technological Platform for Research and Industrial Development, that was recently launched (<http://www.ua.pt/ptaltapressao/>). This platform will pursue food applications as well as biotechnological new processes and products under pressure.

He strongly believes that UA main strengths involve: a young staff based university; a innovative and research promoting atmosphere; a general strategic approach in key areas; constant trial of anticipating future scenarios and main research opportunities; strong interdepartmental collaboration; all this in a wonderful campus and a very nice city (the Portuguese Venice) with a very pleasant weather.



### JOÃO VELOSO

*A highly educated scientific community (...) has conditions to contribute more efficiently to the development of Portugal*

João Filipe Veloso holds a PhD in Technological Physics from the University of Coimbra (2000), where he lectured as an Invited Assistant Professor from 2004 to 2005, after which he moved to the University of Aveiro (UA) where he has been working as an Assistant Professor at the Physics Department. In 2005, he created the DRIM research group – Radiation Detection and Medical Imaging, which he has been leading since then, in the scope of I3N - Associate Laboratory of the UA. He is actively involved in several international collaborations with institutions of excellence, mainly for the development of radiation detectors and physical issues for High Energy, Nuclear and Particle Physics, as well as for Medical Imaging scanners.

His perspectives as a researcher involve the development of new detector concepts for particles and electromagnetic radiation, strengthening, thus, the position of the DRIM Group, already an international reference in the field of the micropatterned gaseous detectors. He considers that one of the main strengths of UA is the fresh environment which facilitates the interaction between research actors - researchers with researchers and researchers with the leadership, and also the promotion and support to the participation in ambitious

projects for infrastructures, equipment and new research fields, using its research strengths and a good capability for a multidisciplinary research.



### SÍLVIA ROCHA

*The improvement of the research should be based on a global and sustainable strategy.*

Sílvia M. Rocha is Assistant Professor in the Chemistry Department of the University of Aveiro (UA). She studied Pharmaceutical Sciences at the Pharmacy Faculty, University of Coimbra, and got her Ph.D. from UA, in 1997. She has been in the Chemistry Department of UA since mid-1990. She is member of the Bioactive Molecules, Food and Health Laboratory from the QOPNA (Organic Chemistry, Natural Products and Food Chemistry) research unit.

The ultimate goal of her research is to contribute to the responsible and sustainable use of natural resources and to the life quality of citizens. For the last 22 years, she has performed studies on the characterization of plant raw materials, prospection of bioactive compounds, and metabolomics. These studies are focused mainly on the analysis of food composition, evaluation of changes promoted by processing, development of methodologies for quality control and prospection of secondary metabolites that may present human health benefits, especially terpenic compounds.

In her opinion, one of the greatest challenges in these areas of research, that involve multi-

ple skills and the study of complex systems, is the ability to create multidisciplinary teams and put them in communication.



### PAULA MARQUES

*The positive side of competition: we can better design projects that will be inventive, unique and original*

Paula Alexandrina Marques is graduated in Chemistry, master in Physical and Chemistry Teaching and doctor in Materials Science and Engineering. Currently a researcher of the TEMA research unit of the Mechanical Engineering Department, Paula is the scientific coordinator of the Nanotechnology Research Division and the sponsor for the Doctoral Program in Nanosciences and Nanotechnology of the University of Aveiro.

Her research interests are linked to the engineering and development of new nanostructured materials, namely the preparation and study of graphene based nanocomposites with numerous potential applications, specifically for biomedical applications. Paula recognizes the importance of collaboration with researchers from various fields and partnerships with business companies, which may enhance the possibility to move forward the fundamental research domain to applied science.

In her opinion, there are three fundamental aspects to develop good research: researchers, infrastructures and funding. The mobility of researchers, particularly at an early stage

of their career is important to exchange experiences and personal growth but the scientific career requires stability to favour the implementation of outstanding quality contribution and recognition of the research groups in the institution. The infrastructures and funding should be managed in a rational and balanced way to serve researchers and to promote their work.



#### **JAN JACOB KEIZER**

*Money makes the world go around, so that getting the necessary funding has increasingly become a major challenge*

Jan Jacob Keizer has been living in Portugal and working at the UA for about 15 years. As a plant ecologist from origin, he has mainly been working on hydrology and soil erosion, with a special focus on post-fire erosion. He is an Assistant Researcher at CESAM, working for the Integrated Watershed Management Research Line. Since his first FCT-funded project as Principal Investigator, he has gradually created his own research team, comprising 24 people.

He will coordinate one of the workpackages (WP) of RECARE, an EU funded project with 28 partners and a WP that will test and demonstrate measures for the prevention, remediation and restoration of 11 different threats to soils and their ecosystem services across 17 case studies located all over Europe. He believes that the project will be an outstanding opportunity to continue the team's past and ongoing research, as the

case study in Portugal concerns the threat posed by soil erosion by water, in particular following wildfires.

One of the biggest challenges he faces in his field of research is to develop an approach that assesses and predicts the on- and off-site effects of wildfires in an integrated manner, addressing not only the physical, environmental and biological aspects but also the socio-economic dimension. In his opinion, the three important strengths of the UA are its horizontal organization, its tradition towards flexible and solution-oriented management and its increasing culture of collaboration across research units, departments and disciplines.



#### **ELISABETE FIGUEIREDO**

*I cannot foresee my teaching activities disconnected from my research activities*

Elisabete Figueiredo is a Sociologist (ISCTE – IUL, 1989) with a PhD on Environmental Sciences (University of Aveiro, 2003). She is an Assistant Professor at the Department of Social, Political and Territorial Sciences and a researcher at GOVCOPP – Research Unit on Governance, Competitiveness and Public Policies at the University of Aveiro. She is the President of the Portuguese Society for Rural Studies (SPER) and co-coordinator of the Environment and Society Section of the Portuguese Association of Sociology (APS).

Her personal expectations and goals regarding research are to develop high quality

research in the area of Rural Studies (including public policies concerning rural development; rural tourism impacts; social representations of rurality and rural development) and also in the field of Environmental Sociology (particularly in the area of social perceptions of risk and of natural resources). Over the last years as a researcher in GOVCOPP she has been working on the topics of tourism and consumption of rural areas. This work was rewarded by FCT in 2012 through the funding of the project «Rural Matters – meanings of the rural in Portugal: between social representations, consumptions and development strategies».

In her opinion, one of the biggest challenges in this area of research is to contribute, through teaching and research, to foster the role and the importance of Social Sciences as fundamental sciences to the critical understanding of the complexity and multiplicity of phenomena (including 'natural' phenomena) which characterize contemporary societies.