
Editorial

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Biographical notes: J.C. Diniz da Costa currently leads the Films and Inorganic Membrane Laboratory (FIMLab), and is an Associate Director of the ARC Centre of Excellence for Functional Nanomaterials and an Associate Professor in Chemical Engineering, at the University of Queensland, Australia. Since 2001, he has received several major research awards including ARC Centre of Excellence, ARC Discovery Projects, ARC International Linkage Projects, Centre for Low Emission Technology, Queensland and North Rhine Westfalia Innovation Research Awards, and the prestigious UQ Foundation Research Excellence Award in 2006. He has published three book chapters and over 80 publications mainly in inorganic membranes, fuel cells and nanotechnology.

José Antônio Brum is a Professor of Physics at the Universidade Estadual de Campinas (UNICAMP) and a Director General at the Brazilian Association for Synchrotron Light Technology (ABTLuS), Brazil. He was awarded a Bachelor (1981) and a Masters (1983) of Physics from UNICAMP. Subsequently, he joined the Ecole Normale Supérieure in Paris, France, where he received his PhD degree (Doctorat d'Etat) in 1987. Upon completion of his high degree, he worked as a Post Doctoral Fellow at the T.J. Watson Research Center, IBM Corporation, USA (1987–1989). In 1990, he was awarded a prestigious fellowship by the Alexander von Humboldt Foundation to work at the Walter Schottky Institute, the Technical University of Munich, Germany (1990–1992). Currently, his work is focused on the theoretical aspects of electronic and optical properties of low-dimension semiconductors, though always working very close with experimental groups.

José D'Albuquerque e Castro is a Professor of Physics at the Universidade Federal do Rio de Janeiro. He obtained his PhD in Physics at the Imperial College, University of London, in 1981. He is a Senior Research Fellow

of the Brazilian Research Council, CNPq, and his current research interest includes magnetic properties of nanostructured materials, electronic transport in nanostructures and spintronics. He has authored more than 60 published journal papers, and has supervised the research project of five PhD students. He is a Coordinator of the Brazil-Argentina Center for Nanotechnology, Deputy Coordinator of the Virtual Institute of Nanoscience and Nanotechnology of Rio de Janeiro, and member of the Scientific Committee of the Millennium Institute of Nanotechnology, of the Brazilian Ministry of Science and Technology. He has acted as Scientific Consultant for several Agencies in Brazil and abroad.

The papers in this special issue were presented at the first Australia-Brazil Bio-Nanotechnology Conference (ABBINTech 2006) which was held in Brisbane (Australia) on 27–28th March 2006. The ABBINTech is an initiative of the Brazilian Government via the Ministry of Science and Technology in conjunction with The University of Queensland (UQ) via the Australian Institute of Bioengineering and Nanotechnology (AIBN) and the Australian Research Council (ARC) Centre of Excellence for Functional Nanomaterials, and fully supported by the Brazilian Synchrotron Light Laboratory (LNLS) and several Brazilian and Australian Universities and Research Institutions. The motivation for the ABBINTech 2006 was to bring together Brazilian and Australian academics, scientists and engineers in an open scientific forum to showcase and share knowledge in Bio-Nanotechnology research activities. Underpinning the motives of this conference are the climate and environmental similarities shared by Brazil and Australia, making it ideal for R&D collaboration in bioengineering and nanotechnology applications.

The papers in this special edition show a spectrum of research activities in bio- and nanotechnology currently being undertaken in both Brazil and Australia. Many of the papers address contributions to

- spectroscopy, microscopy and microanalysis
- nanomaterials, nanoparticles and semiconductors
- bio-nanomaterials
- computational quantum chemistry and modelling
- biosystems and composite materials
- nanophotonics, nanomaterials and nanocomposites
- nanomaterials for energy applications.

The drivers for R&D in bio- and nanotechnology are often cited with potential realisation in health, energy and environmental areas. Clearly the relative importance of each of these will vary from country to country. Nevertheless there is a growing interest in these technologies world-wide, and Brazil and Australia need to be informed of the opportunities that new technologies may bring. It is to be hoped that the papers in this special edition will also stimulate further discussion, research collaboration and development between Brazil and Australia.

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