

Foreword

Nanoscience, Nanotechnology and Nanobiotechnology, former world-scale promises for future, are now omnipresent in advanced technological products and in bio-issues such as newly developed drugs, immuno-assays or nano-probing imagery for medical applications. The United States National Science Foundation estimates that the worldwide market for materials, industrial products and processes based on nanotechnology will generate about 1 trillion dollars in 2015. From the point of view of the production of knowledge in the research world, nanoscience, nanotechnology and nanobiotechnology are responsible for the publication of approximately 20,000 scientific papers in international journals in the last seven years, according to the ISI Web of Knowledge.

In Brazil, the government initiatives in the area of nanotechnology have begun in 2004 by the implementation of the actions of the “Programa de Desenvolvimento da Nanociência e Nanotecnologia” as part of PPA 2004 – 2007. This program, which was directed to the generation of patents, products and processes in the area, provided a substantial support for research. Investments between 2005 and the first half of 2006 were in the range of R\$ 70 million. In this context, national research centers such as LNLS, CBPF, Embrapa Instrumentation and CETENE have been created or strengthened, with support given to projects dealing with fundamental research, usually including collaborations between universities and companies.

MCT/CNPq in its 031/2005 call for proposals have given some highlights to the Brazilian-French cooperation in the area of research on Nanoscience and Nanotechnology, providing 5 Brazilian projects, based on a strong and efficient cooperation with French teams, with a financial support. In this framework, the association of the groups from the 5 supported projects found appropriate to organize a Franco-Brazilian Meeting of Nanoscience and Nanotechnology focused on research, development and innovation bringing together their scientific strengths.

The Franco-Brazilian First Meeting of Nanoscience, Nanotechnology and Nanobiotechnology has allowed the get-together of researchers, doctors and newly post-graduate students from institutions of highest education, institutes and centers of research and development of both countries. They were all engaged in joint projects of scientific research, technology and innovation in Nanosciences within International Cooperations between Brazil and France. This meeting was a multi (inter) disciplinary event dealing with Physics, Chemistry, Biology and variously related areas, during which recent developments of researches and technological progresses on the nanoscale were discussed.

As an opening of the meeting, an invited conference on “Giant Magnetoresistance” has been given by Prof. Mario N. Baibich, from Universidade Federal do Rio Grande do Sul. Mario Baibich is a close collaborator of Albert Fert, who received with Peter Grunberg the 2007 Nobel Prize in Physics. All the 23 oral presentations were invited talks (11 from Brazil, 12 from France). Twelve French scientists have delivered oral presentations: F. Bozon-Verduraz from Université Paris Diderot, H. Fessi and Abdelhamid Elaissari from Université Lyon I, D. Givord and H.C.N. Tolentino from Institut Néel – Grenoble, F. Cousin from Laboratoire Lón Brillouin – CEA Saclay, A.Y. Khodakov from Université des Sciences et Technologies de Lille, J.L. Mansot from Université des Antilles et de la Guyane, J. Dexpert-Ghys from Centre d’Elaboration de Matériaux et d’Etudes Structurales – Toulouse, J. Oberdisse from Université Montpellier II, V.H. Etgens from Institut des NanoSciences de Paris and R. Perzynski from Université Pierre et Marie Curie - Paris 6. There were eleven Brazilian invited speakers: W. A. A. Macedo from the Centro de Desenvolvimento da Tecnologia Nuclear - Belo Horizonte, M.C. Rangel from Universidade Federal da Bahia, F. Garcia from Laboratório Nacional de Luz Síncrotron – Campinas, J.-G. Eon and V.M.T.S. Barthém from Universidade Federal do Rio de Janeiro, S.S. Guterres from Universidade Federal do Rio Grande do Sul – Porto Alegre, H.R. Rechenberg from Universidade de São Paulo, M.I. Ré from IPT – Instituto de Pesquisas Tecnológicas do Estado de São Paulo, L.C. Sampaio from Centro Brasileiro de Pesquisas Físicas – Rio de Janeiro, J. Depeyrot and F. A. Tourinho from Universidade de Brasília.

The event also included nine oral presentations selected among registered participants, and a poster session. A brief oral presentation of the 36 posters has been included in the planning. All the poster applications to the meeting have been accepted, allowing each of the participants of the meeting to present his own scientific work.

The “Franco-Brazilian First Meeting of Nanoscience, Nanotechnology and Nanobiotechnology” were held in Universidade de Brasília. We heartily thank all the sponsors that have provided the organizing committee with financial support to the meeting. Firstly, we are greatly indebted to the Universidade de Brasília, which offered all its structure, and to the Ambassade de France, through Dr. Jean-Pierre Courtiat, Attaché Scientifique à l’Ambassade de France à Brasília, for its expressive financial support. Moreover, we are grateful as well to the Brazilian agencies CAPES, CNPq, FAPDF, FINATEC and FUBRA. We also deeply thank Dr. Silvio Salinas who supports from the beginning the edition of a special issue containing the proceedings of the “Franco-Brazilian First Meeting of Nanoscience, Nanotechnology and Nanobiotechnology”. Finally we are greatly indebted to all the referees for their contribution to the achievement of this issue.

Jérôme Depeyrot (UnB, Brasília, Brazil)

Régine Perzynski (U.P.M.C., Paris, France)

Francisco Augusto Tourinho (UnB, Brasília, Brazil)

Renata Aquino (UnB, Brasília, Brazil)

Guest editors