
Editorial

Chien Mau Dang

Institute for Nanotechnology,
Vietnam National University Ho Chi Minh City,
Community 6, Linh Trung Ward,
Thu Duc District, Ho Chi Minh City, Vietnam
Email: dmchien@vnuhcm.edu.vn

Robert Baptist

CEA-LETI,
Minatec Campus – 17, rue des Martyrs – 38054 Grenoble,
Cedex 9, France
Email: robert.baptist@cea.fr

Biographical notes: Chien Mau Dang received his MSc and PhD in Materials Science from the National Polytechnic Institute in Grenoble (Grenoble INP), France in 1991 and 1994. In 1996 and 2007, he received his Master's in Management from the University Pierre Mendès France and the Diploma of Habilitation for Research Direction (DHDR) in Materials and Process Engineering from the Grenoble INP. From 1996 to 2004, he was Head of Department of Materials Science Fundamentals, Vice-Dean of Faculty of Material Technology, HCM City University of Technology. Since 2005, he has been Associate Professor and then Professor. In 2004, he created the Laboratory for Nanotechnology (LNT), VNUHCM, of which he has been Director since then. In 2016, LNT has been upgraded to the Institute for Nanotechnology (INT). He is a member of several national level research bodies and councils. He has authored or co-authored about 100 publications in ISI and Scopus journals and 12 patents.

Robert Baptist was Research Director at the Technology Department of the Commissariat aux énergies alternatives et à l'énergie atomique (CEA) and was part of the management team of CEA-LETI. He obtained his PhD from the University of Grenoble in 1982. He is the author or co-author of 65 publications and 15 patents in physics and microelectronics, fundamental and applied research. He was in charge of CEA's transversal programme on nanosciences and nanotechnologies (ChimTronique) from 2002 to 2008. He has participated in or led many European projects and was editor of various editorial lines such as "Nanosciences and Nanotechnologies" and "Electronic Engineering". He is currently Scientific Advisor at CEA-LETI and Scientific Director of the publications translated to Spanish at ISTE Editions.

Introduction

Dear readers of this issue,

It is our great pleasure to present here a set of 19 key papers selected at The 7th International Workshop on Nanotechnology and Applications (IWNA) held on 6–9 November, 2019 in PhanThiet, Vietnam. This conference is co-organised every two years by the Institute for Nanotechnology – Vietnam National University Ho Chi Minh City, Vietnam and MINATEC, France, to bring together all researchers in the field of nanotechnology from Vietnam and abroad.

The selected papers reflect the most important research carried out in Vietnam, Asia and through collaborations with international partners in the vast field of nanosciences and micro-nanotechnologies. The papers range from nanofabrication techniques, nanomaterials and nanodevices to applications of nanosciences and micro-nanotechnology. In particular, applications relating to energy devices or those for the environment and health.

Six papers focus on technological developments and their applications to devices. Among them, three concern the fabrication of nanoscale devices that can be used for intrachip communication (plasmon interconnections), for the generation of 1D, 2D or 3D nanostructures through single photon absorption and to silicon nanowires through a top-down method, for various uses in nanofluidics, nanophotonics and nanoelectronics. The other three papers deal with the generation of micronic or millimetric objects using microfluidics or lithography applied to films subject to capillary folding.

Four papers refer to the applications of materials to energy. The first discusses fuel cell technologies, two papers deal with nanomaterials for batteries, and the last discusses cerium oxide-based catalysts loaded with nickel nanoparticles for dry reforming of methane.

Finally, nine (9) papers address the fabrication and characterisation of nanomaterials for application in optics (4), environment/health (4) or as a candidate for replacement of rare earth (1 paper on magnetic properties of composite materials). It should be noted that this work is generally characterised by a strong interdisciplinarity involving a variety of expertise on materials, nanoscale, the physics of optical transitions, photocatalysis, or applicability to environmental and health issues.

This selection reflects the quality of the research carried out mainly in Vietnam but also in several Asian countries in the field of nanosciences and micro-nanotechnologies. The dual character of “basic research + applications to societal needs” is clearly present in this collection of work and underlines both the internationalisation and the concern for innovation in the research presented at the IWNA 2019 conference.

We would like to express our gratitude to the Editorial Board of the International Journal of Nanotechnology (IJNT) and in particular to Dr. Lionel Vayssieres, Editor-in-Chief of the IJNT, for his kind invitation to publish these contributions.

Finally, the Guest Editors would like to thank all the authors who have actively contributed to this special issue of IJNT.