Editorial

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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 Mendes France and the Diploma of Habilitation for Research Direction (DHDR) in Materials and Process Engineering from the Grenoble INP. From 1996 to 2006 he was Head of Department of Metal and Alloy Materials, Department of Materials Science Fundamentals, and Vice-Dean of the Faculty of Material Technology, at 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 was Director until 2020. In 2016 LNT was upgraded to the Institute for Nanotechnology (INT). He is currently appointed as the President of the Institute Council. He is a member of several national-level research bodies and councils. He has authored or co-authored about 120 publications in ISI and Scopus journals, 235 publications in other proceedings and journals, and 20 patents.

David Riassetto is an Associate Professor HDR of Material Science. He got an MSc in Physics and Energy with honours in 2005 at University Joseph Fourier of Grenoble and a PhD at Grenoble Institute of Technology in 2009. Between 2009 and 2011 he was a postdoctoral researcher at the University of Utah. Since 2011, he has been an Associate Professor at Grenoble Institute of Technology and doing his researches in the LMGP laboratory (Laboratory of Materials and Physical Engineering), and a member of the Thin Films, Nanomaterials and Nanostructures team, and more precisely of the Wet Chemistry and Surface Functionalization group. Currently, his researches focus on the surface functionalisation at the nanometre scale, using wet-chemistry methods (e.g., sol-gel, photochemistry…), mainly for depollution (photocatalysis) and water management (water purification, desalination, water harvesting) applications. Since 2018 he has been a member of the board of Labex Ceman, and since 2023 he has been coleader of the CARE Lab core theme 'Water Management'.

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1 Introduction

Dear readers of this issue,

It is our great pleasure to present here a set of 24 key papers selected at the *8th International Workshop on Nanotechnology and Applications (IWNA)* held on 8–11 November 2023 in Phan Thiet City, Binh Thuan Province, Vietnam. The Conference was jointly organised by *Vietnam National University Ho Chi Minh City (VNUHCM)/Institute for Nanotechnology (INT)*, the *People's Committee of Binh Thuan Province* and *CEA – LETI/MINATEC, France*. It was supported by the Ministry of Science and Technology (Vietnam), Department of Science and Technology (HCM City), Vingroup Innovation Foundation (VINIF) and other organisations. There were about 350 participants joining the Conference (including 70 foreigners from 20 countries and territories), coming from various universities, institutes, laboratories, and companies all over the world.

The Conference highlighted four plenary invited talks given by Prof. Marc Madou, University of California at Irvine (UCI), USA; Prof. Juergen Brugger, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland; Prof. Nick Quirke, Imperial College London, UK; and Prof. Lionel Vayssieres, Xi'an Jiaotong University, China, the founder of the *International Journal of Nanotechnology*. There were also 26 parallel oral sessions together with poster and exhibition sessions and a Scientific Skills Course guided by Prof. Wilfred van der Wiel from Twente University, the Netherlands. Two hundred and sixty papers were presented (invited/oral/poster presentation), covering almost every aspect in nanotechnology, varying from fundamental research, theoretical and computational nanoscience, nanofabrication techniques, nanomaterials and nanodevices to applications of micro-nanotechnology. As a part of the Conference, the Forum on Business Opportunities of the Micro-Nanotechnology Industry in Vietnam was organised for the scientists, researchers and business community to exchange business opportunities in the micro-nanotechnology field in Vietnam. Moreover, several cooperation meetings between INT leaders and some foreign institutions were held to enhance the joint research projects and staff training exchange.

There have been several manuscripts submitted from the participants to this Special Issue of the *International Journal of Nanotechnology*.

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.

Two papers present fundamental research on the evolution in characteristics of germanene upon hydrogenation and on the first principles calculation study on intrinsic spin Hall conductivity of β-W alloying with titanium.

Three papers focus on nanofabrication techniques to fabricate silver nanowires and polyhedral silver nanoparticles as promising SERS substrates; lithography technique to fabricate thin film platinum electrodes for resistance temperature detector; and a review on 3D-printing techniques for developing the biochip DNA sensors.

Thirteen papers address the fabrication and characterisation of nanomaterials and devices. Four papers discuss the synthesis and characterisation of ZnO nanoparticles,

TiO_2 nanoparticles, V_2O_5 flowers/reduced graphene oxide mixtures, and Fe_3O_4-Ag hybrid nanomaterials. Four papers present the investigation of chitosan/poly(vinyl alcohol)/curcumin film for wound dressing application, platinum electrode film for salinity measurement, nanocomposite film of poly(vinyl alcohol)/graphene-oxide-ZnO for biomedical application, and polyaniline and reduced graphene oxide-polyaniline composites for salivary biosensors. Two papers deal with pPLA/thermoplastic cassava starch blends with poly(ethylene glycol), and PBT/glass fibre blends. One paper refers to bactericidal activity of clove basil essential oil microemulsion on *Aeromonas hydrophila*, another one discusses automated detection and enumeration of bead encapsulation in microfluidic droplets, and the last one presents dye-sensitised solar cells with Z907 dye and eco-friendly eutectic electrolyte based on urea-acetamide mixture.

Finally, six papers present nanomaterials and blends for application in wearable biosensors, immunosensors, bone tissue engineering applications, adsorption of heavy metal ions in water, water harvesting, and photonic crystal fibres.

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 2023conference.

We would like to express our gratitude to the Editorial Board of the *International Journal of Nanotechnology* and in particular to Prof. Lionel Vayssieres, Editor-in-Chief of the journal, 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.