
Editorial

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Biographical notes: F. Teixeira-Dias received his MSc and PhD in Mechanical Engineering from the University of Coimbra in 1995 and 2000, respectively. In 2009 he received his habilitation from the University of Aveiro. He lectured at the University of Coimbra until 1997 and has since then been Assistant Professor and Head of GRIDS-DAPS – Division of Armour & Protection Systems at the University of Aveiro. He is president of the LWAG – Light-Weight Armour for Defence & Security and has over 17 years of teaching and research experience in composite/cellular materials, numerical simulation and finite elements. He is reviewer and scientific advisor for many international journals and conferences.

In present days we live in permanent need for new armour and protection technologies, materials and systems. Thus, scientific meetings and workshops where these issues can be discussed are of paramount importance. The primary objectives of the LWAG Group – Light-Weight Armour for Defence & Security – are to create the opportunity to exchange new ideas and views on light-weight armour materials, technologies and systems. Participants in these events come from different scientific and industrial areas, such as, materials (metals, composites, foams, plastics), explosives, systems' design, testing, numerical simulation and modelling, etc., leading to truly inter-disciplinary meetings. The LWAG 2009 Conference was a great forum where people from academia, defence industry and government institutions had the opportunity to discuss these issues.

This special issue of the *International Journal of Materials Engineering Innovation (IJMatEI)*, dedicated to the LWAG 2009 Conference, publishes a set of five high-quality research articles related to security and to the use of innovative technologies and materials in defence applications, and in particular against terrorism. These papers concern the evaluation of the risk in explosions in train carriages and the analysis of the impact behaviour of soft missiles. Research studies in this special issue also present the characterisation of an alternative aluminium alloy for light-weight armour applications, the use of cellular materials for blast-wave protection and shear thickening fluids incorporated within composite materials. One other research study is published on the use of a new material for tougher composite: the conch shell. Both experimental and numerical approaches are presented and discussed.

The editor would like to thank all the authors and all the referees for their availability and their thorough evaluations of the papers that appear in this special issue.