

ICMFM18-Mechanical fatigue of metals

This special issue represents a set of contributions presented in the International Colloquium on Mechanical Fatigue of Metals (ICMFM18) which was held in Gijón, Spain, during 5-7 September 2016. The objective of this conference is to maintain a forum for discussion among different scientific communities, engineers and designers on the different aspects of metal fatigue, looking at the problem of fatigue from experimental, analytical, simulation and applications points of view, covering the following topics: cyclic plasticity and internal structure; low, high and gigacycle fatigue; mechanisms of fatigue damage; fatigue thresholds; short and long crack growth; life prediction; fatigue modelling; variable amplitude loading; thermal fatigue; multiaxial fatigue; fatigue in biomaterials; high temperature fatigue; fatigue-corrosion; environmental assisted fatigue. The selected papers for this special issue have gone by a peer review process according to the standards of the *International Journal of Structural Integrity*. This special issue of the ICMFM18 conference is composed by a total of eight papers covering some topics related with the mechanical fatigue of metals.

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Acknowledgements

As guest editors, we hope this special issue provides a remarkable impact in the research related with mechanical fatigue of metals presented in the ICMFM18 conference. We would also like to express our gratitude to all authors for their contributions and to all reviewers for their generous work to guarantee the excellence of the papers. Finally, the guest editors would like to express a special thanks to Professor Chris Rodopoulos, Editor-in-Chief of the *International Journal of Structural Integrity*, and to Emerald staff for their support during the preparation of this issue.

About the Guest Editors

José António Fonseca de Oliveira Correia was born in 1984 in Peso da Régua, Portugal. He is a Researcher of Optics and Experimental Mechanics Laboratory (LOME) of INEGI/UP and CONSTRUCT/FEUP (Portugal). He is also an Invited Professor at the Structural Mechanics Section in the Civil Engineering Department of the University of Coimbra. He obtained the BSc and MSc Degrees in 2007 and 2009, respectively, both in Civil Engineering from the University of Trás-os-Montes e Alto Douro. He is a Specialist in Steel and Composite (Steel and Concrete) Construction from the University of Coimbra in 2010. He received a PhD



Degree in Civil Engineering from the University of Porto in 2015. He is also a co-author of more 30 papers in the most relevant scientific journals devoted to engineering materials and structures and 80 proceedings in international and national conferences, congresses and workshops. He is a member of scientific and professional organizations, such as Ordem dos Engenheiros, Associação Portuguesa de Construção Metálica e Mista (CMM), and Associação para a Conservação e Manutenção de Pontes (ASCP). He is a Co-chair of TC12 of European Structural Integrity Society (ESIS). His current research interests are: behaviour to fatigue and fracture of materials and structures (steel and aluminium, riveted and bolted connections, pressure vessels, old steel bridges, wind turbine towers, offshore structures); probabilistic fatigue modelling of metallic materials (including statistical evaluation, size-effect, cumulative damage, confounded data); probabilistic design of glass structural elements; mechanical behaviour of materials and wooden structures (connections and characterization of ancient structures); and mechanical and chemical characterization of old mortars and masonry structures. José António Fonseca de Oliveira Correia is the corresponding author and can be contacted at: jacorreia@inegi.up.pt

Miguel Muñiz Calvente was born in 1987, in Asturias, Spain. He received a five year BEng and MEng Degrees in Industrial Engineering from the University of Oviedo in 2011 and an MSc Degree in Mechatronic Engineering (12ECTS) from the same University in June 2013. During the last year of the MSc studies, Miguel Muñiz obtained a grant by the Asturias Government to start his PhD thesis on the IEMES research Group. During his PhD, Miguel Muñiz Calvente conducted research under the supervision of Professor A. Fernández Canteli in the fields of Probabilistic Design and Characterization of Mechanics of Materials, with particular emphasis on the development of a Generalized Local Model. In February 2017 he successfully defended his PhD thesis achieving the highest mark (Summa Cum Laude). Miguel Muñiz Calvente is currently an Assistant Professor in the University of Oviedo on the field of Continuum Mechanics and Structures and is focused on study of structural integrity of components and structures under a probabilistic point of view, ensuring the transferability of the results from the laboratory to the real world. During the last years, his work on these topics has been disseminated in 15 papers published on different international journals indexed on the JCR, and more than 30 contributions on national and international conferences around the World.

Abilio Manuel Pinho de Jesus was born in 1973 in Oliveira de Azeméis, Portugal. Since 2014, he has been an Auxiliary Professor at the Department of Mechanical Engineering, Faculty of Engineering, University of Porto (FEUP), after 18 years of teaching activity at the Department of Engineering of the University of Trás-os-Montes e Alto Douro, Vila Real, Portugal. He is also a Researcher at the Institute of Science and Innovation in Mechanical and Industrial Engineering (INEGI) and is integrated in the Associated Laboratory for Energy, Transport and Aeronautics (LAETA). He received the BSc and MSc Degrees in 1996 and 1998, respectively, both in Mechanical Engineering from the University of Porto and the PhD Degree in Mechanical Engineering from the University of Trás-os-Montes e Alto Douro in 2004. He is a co-author of more than 90 papers in national and international scientific journals and more than 200 papers presented in both national and international conferences. A total of 117 documents in SCOPUS and an h-index of 14 show the consistency and visibility of the research work that has been developed in the fields of fatigue and fracture of materials and structures. The recent edition of the Structural Integrity Book series, the nomination for the ESIS TC12 and the new European Project, FASTCOLD, highlights the research excellency being performed. The manufacturing processes, and particularly machining processes, have been recently elected as a research priority; the grounds of a group in the field are being created. Process simulation, material characterization, hybrid manufacturing (additive and subtractive) and composites machining are also targeted.

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Alfonso Fernández-Canteli was born in Oviedo, Spain, on 17 April, 1945. He is a Professor Honorary Emeritus of Structural Engineering, Polytechnic School of Engineering, University of Oviedo, Spain. He received the Mechanical Engineering Degree from the University of the Basque Country 1970 and the PhD Degree in Mechanical Engineering from the Polytechnic University Madrid, 1981. He is a co-author of one book in Springer, a co-editor of two conference proceedings, more than 110 international papers and 130 international conference proceedings. He participated in 40 competitive research projects, 50 industrial research projects and 40 technical reports related to fatigue, fracture mechanics, modelling, structural pathology, etc. He is the Director or Co-director of 18 Doctoral theses (three with European recognition), H-index=19, 1,106 citations. His current research interest has been the following topics: probabilistic fatigue modelling of metallic materials, glass, concrete and composites, including VHCF; scale effect and test data evaluation based on the generalized local model; and, three-dimensional fracture mechanics modelling applied to structural design.