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Foreword: Fatigue Crack Paths 2018 (after CP 2018)



The direction or path of the initial crack and its subsequent growth path in most engineering structures and components must be taken into account both in design and in the analysis of failures. Knowledge of potential crack paths is needed for both the solution of a crack growth problem under fatigue loading, as well as for the selection of appropriate non-destructive testing procedures. Interest on this challenging issue has steadily increased during the last few decades.

In September 2018, 130 fatigue and fracture delegates from 35 countries all over the world gathered in Verona, Italy, for the 6th International Conference on Crack Paths (**CP 2018**). The Conference was chaired by Professor Filippo Berto, NTNU, Norway, Professor Andrea Carpinteri, University of Parma, Italy, Professor Youshi Hong, Institute of Mechanics CAS, China, Professor Les P. Pook, formerly University College London, UK, and Professor Sabrina Vantadori, University of Parma, Italy.

Previous conferences in the series were held (always in September): the International Conference on Fatigue Crack Paths in Parma, Italy, 2003 (**FCP 2003**, Special Issue of Fatigue and Fracture of Engineering Materials and Structures, Vol.28, No. 1-2, 2005), the 2nd International Conference on Crack Paths held in Parma, Italy, 2006 (**CP 2006**, Special Issue of Engineering Fracture Mechanics, Vol.75, No.3-4, 2008) where the scope was extended to cover all types of crack growth, the 3rd International Conference on Crack Paths held in Vicenza, Italy, 2009 (**CP 2009**, Special Issue of Engineering Fracture Mechanics, Vol. 77, No. 11, 2010), the 4th International Conference on Crack Paths held in Gaeta, Italy, 2012 (**CP 2012**, Special Issue of Engineering Fracture Mechanics, Vol. 108, 2013, and Special Issue of International Journal of Fatigue, Vol. 58, 2014), and the 5th International Conference on Crack Paths held in Ferrara, Italy, 2015 (**CP 2015**, Special Issue of Engineering Fracture Mechanics, Vol. 167, 2016, and Special Issue of International Journal of Fatigue, Vol. 92, Part 2, 2016).

Before the **CP 2018** Conference, ESIS Technical Committee TC3 on Fatigue of Engineering Materials and Structures, chaired by Andrea Carpinteri and Les P. Pook, proposed the publication of special issues to the Editors of both International Journal of Fatigue and Theoretical and Applied Fracture Mechanics.

This IJF special issue contains 23 selected papers from the Conference. Such papers show that, since the first Conference of the series (in 2003), there has been further significant progress in the understanding of fatigue crack path behaviour and in the application of this knowledge to practical engineering problems. The papers have been revised and extended by the authors, as appropriate, and subjected to the normal International Journal of Fatigue review process. We thank the many anonymous reviewers who assisted us in the reviewing process.

The special issue of Theoretical and Applied Fracture Mechanics, entitled Crack Paths 2018, also contains 26 selected papers.

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