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*“Computational Modelling in Protective
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Advances and Good Practice”*

Special Issue Guest Editors:

Prof. Yong Lu and Prof. Daniel Ambrosini

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“Computational Modelling in Protective Engineering Research – Recent Advances and Good Practice”

Guest Editors

Yong Lu* and Daniel Ambrosini

School of Engineering, University of Edinburgh, William Rankine Building, The Kings Buildings, Edinburgh EH9 3JL, UK.
Engineering Faculty, National University of Cuyo, CONICET, Mendoza, Argentina. Email: dambrosini@uncu.edu.ar

PREFACE

Protective engineering has attracted significant renewed research interest in recent years. In the development to tackle the challenges arising from the needs of in-depth and detailed information about the complex dynamic structural and material responses, the use of sophisticated computational modelling has become a seemingly indispensable means. Apart from being driven by the traditional difficulties when it comes to performing physical experiments for the types of extreme loads concerned, the trend has been fuelled by the rapid advancement in the computing power and software capabilities. It is not difficult nowadays for an analyst to model even quite complex loading and nonlinear responses using just a desk-top computer. On the balancing side, however, we should always be reminded that the ability to exploit the modelling capabilities and make good sense of the results is still and will remain to be dependent upon sound comprehension of the underlying mechanics and physical processes, as well as calibration of the models by rigorous comparison with experimental results.

This special issue of International Journal of Protective Structures (IJPS) has brought together a state-of-the-art representation of the latest advances in the computational modelling of protective structures against a variety of high impulsive loads. By sharing the experiences on the successes, challenges, and pros and cons in the development and implementation of various modelling techniques, it is hoped that the special issue will also serve to promote the best practice in performing competent numerical modelling analysis to meet the challenges on both the research and practical design fronts.

Contributions to this special issue have been solicited by invitation, and all the papers submitted have been reviewed by at least two experts in the relevant field of studies. Topics covered in this special issue include fundamental modelling considerations such as the effects of shear dilatancy and failure limits in the concrete models on the simulated blast behaviour of reinforced concrete structures; specific modelling considerations such as coupling in a multi-layer medium environment and the erosion limits; FE analysis involving high strength materials, fibre-reinforced concrete, and shell structures; as well as modelling of explosive hazard in a broader spatial domain.

We wish to take this opportunity to thank all contributors for sharing their research experiences and findings in this special issue of IJPS. We also wish to extend our thanks to all the reviewers for providing timely review of the papers and valuable comments.

*Corresponding author. *E-mail address:* yong.lu@ed.ac.uk