Special Issue Guest Editorial

Structural performance assessment and monitoring of civil Infrastructure play an important part in safety and proper functioning of civil infrastructure, mobility, and economic growth of society. The focus of the current issue of the Electronic Journal of Structural Engineering is on "Structural Performance and Monitoring of Civil Infrastructure". The performance and monitoring of the critical civil infrastructure is presented using a combination of site assessment and monitoring, laboratory experiments and computer modelling and simulations. The site assessment and monitoring case studies take the state of the art one step further by providing indication of the existing condition of the structures. The information is useful for the service life prediction of structures and their adequacy in resisting service and extreme loads. The level of deterioration and knowledge of localising the damage can help save time and resources significantly.

Accordingly, this special issue contains articles, which were thoroughly peer reviewed and accepted from a list of invited manuscripts that prove significant level of effort and innovation in the area of the structural health monitoring. It is a relatively new area of research in academia but one that will continue to gain importance in the coming years with aging infrastructures in Australian and elsewhere in the world needing to meet serviceability and safety requirements. This special issue contains 7 papers related to structural performance assessment and monitoring which are mostly an outcomes of Infrastructure Cluster projects funded by the Australian-Indonesia Centre (AIC).

Often times, the fatigue sensitive location may not be well defined. In this case, the required sensor density may pose a challenge to any structural health monitoring strategy. This Special Issue will highlight work conducted using distributed optical fibre sensors (DOFS), where the possibility of using a single strand of optical fibre to measure both the static and dynamic strain responses at multiple points is realised. The idea of using naturally occurring stimulus in conjunction with the DOFS capability is particularly attractive for the structural health monitoring of large structures including pipeline structures.

This collection of articles will hopefully stimulate much further research and practical activities. The guest editors are honoured to have the Foreword and the Impact of the Special Issue written by Professor Colin Duffield (University of Melbourne) and Professor Abbas Rajabifard (Centre for Disaster Management and Public Safety, CDMPS), respectively. On behalf of the eJSE, the guest editors would like to thank the reviewers for their helpful feedback, time and making this special issue possible.

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