

## MODELLING AND OPTIMIZATION OF FUNCTIONALLY GRADED COMPOSITES AND STRUCTURES

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### ABSTRACT

Functionally graded materials (FGM) are an advanced type of composites that may present enhanced behaviour performance when compared with other types of composites. Their continuously varying microstructure provides smooth properties' variation without interfacial stress concentrations [1]. These materials were initially designed for a specific application in concrete to reduce the thermal stresses arising from the high temperatures of the metal and ceramic interfaces in a space shuttle project [2]. Besides this first goal of thermal barrier function, the ability to tailor materials mixture's distributions according to specific operating requirements, without the disadvantages shown by traditional laminates, is progressing significantly in different Science and Engineering fields [3]. The FGM concept can be found in many natural materials, and it can also be extended to active/passive materials mixtures, thus providing adaptive capabilities to the structures they are built with.

This mini-symposium aims to highlight the recent advances in the broad scope of the modelling, analysis and optimization of functionally graded composites and structures.

### REFERENCES

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