COMPUTATIONAL ANALYSIS OF ADVANCED MATERIALS AND STRUCTURES

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ABSTRACT

Advanced materials and Structures have an increasing role in engineering, in various industrial applications [1-3]. These structures operate in severe environments, withstand complex multi-axial loading conditions. Fracture of advanced materials is also a major problem that may occur inside the structures consisting of different materials and at the interfaces between the different advanced materials.

Topics of interest include but are not limited to the Computational analysis of composite structures made from advanced materials, Failure of composite structures, Comparison of computational and experimental methods in composite structures from advanced materials, Computational analysis of interface problems in composite structures, Computer aided design in composite structures, Computational study of constructions made of advanced materials.

REFERENCES

- [1] A. M Nikolarakis and E. E Theotokoglou, "Thermal shock problem of a three –layered functionally graded zirconia/titanium ally strip based on a unified generalized thermoelasticity theory", *Journal of Thermal Stresses*, Vol. 40, pp. 583-602 (2017).
- [2] I. K. Giannopoulos, E. E. Theotokoglou and X. Zhang X, "Impact damage and CAI strength of a woven CFRP material with fire retardant properties", *Composites Part B: Engineering*, Vol. 91, pp.8-17 (2016).
- [3] O.C. Zienkiewicz and R.C. Taylor, *The Finite Element Method*, 4th Edition, Vol. 1, Mcgraw Hill, 1989