COUPLED MECHANICS AND MATERIAL MODELLING IN MULTIPHYSICS AND EXTREME ENVIRONMENTS

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ABSTRACT

There is a growing demand for the understanding (via modelling, simulation and validation) of intelligent materials or engineering components capable of performing in Multiphysics (i.e. chemo-electro-magneto), or even extreme environments (i.e. high temperature, corrosive). This session seeks to gather researchers working at the frontier of computational modelling in these scenarios, where either multiple physics are intrinsically coupled (cannot be easily decoupled/staggered) or where the user cannot easily interact with the problem via accessible (or even safe) laboratory experiments.

This mini-symposium's topics of interested include (but are not limited to) materials for energy storage, soft active materials, material degradation under degenerative environmental conditions, or materials performing under extreme environments. The session is not restricted to a specific continuum formalism or computational modelling technique per sé, but open to the wider audience: mesh based, phase field, and meshless based techniques, scale bridging and homogenisation, stabilisation methods for extreme scenarios and latest Machine Learning approaches for Multiphysics, to name but a few.

REFERENCES

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