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UNCERTAINTY PROPAGATION AND MODEL AUGMENTATION IN COUPLED PHYSICS AND DATA-BASED MODELS

CHADY GHNATIOS[1], ANAIS BARASINSKI[2], MOATAZ ATTALLAH[3] AND MUSTAFA MEGAHED[4]

[1] University of North Florida
1 UNF drive, Jacksonville FL 32224, USA
chady.ghnatios@unf.edu

[2] Institut Clément Ader (ICA) ; Université de Toulouse ; CNRS, IMT Mines Albi, INSA, ISAE-SUPAERO, UPS ; Campus Jarlard, F-81013 Albi, France
anais.barasinski@mines-albi.fr

[3] University of Birmingham
Birmingham B15 2TT, United Kingdom
m.m.attallah@bham.ac.uk

[4] ESI Germany GmbH
Kruppstr. 90, 45145 Essen, Germany
mustafa.megahed@esi-group.com

ABSTRACT

Modelling and simulation of advanced manufacturing processes (3D printing, compression moulding…) often involves coupled physics with little to no available data on the exact material properties under the processing conditions. The ignorance involved in these processes propagates through the simulation and deviates the digital twin solutions from the exact measurements [1,2]. Recent developments aim to complement the solutions with data-driven methods, while others aim to refine the models through parameter identification or model augmentations.

The aim of this minisymposium is to collect and discuss recent developments and advances aiming to address the coupled models' augmentations using data measurements and in-situ knowledge. The main topics of the minisymposium are, but not limited to, the uncertainty propagation through coupled physics, the parameters identification for in-situ processes, modelling augmentation by data, ignorance characterization.

REFERENCES

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