14th World Congress on Computational Mechanics (WCCM XIV)
8th European Congress on Computational Methods in Applied Science and Engineering (ECCOMAS 2020)
July 19- 24, 2020, Paris, France

COMPUTATIONAL MODELLING OF DAMAGE AND FRACTURE

TRACK NUMBER 100

LEONG HIEN POH[*], RON PEERLINGS[+], GEORGE Z. VOYIADJIS[#], AND SAMUEL FOREST[^]

[*]National University of Singapore
1 Engineering Drive 2, E1A 07-03, Singapore 117576
leonghien@nus.edu.sg
http://cee.nus.edu.sg//people/ceeplh

[+]Eindhoven University of Technology
PO Box 513, 5600 MB Eindhoven, Netherlands
R.H.J.Peerlings@tue.nl
https://www.tue.nl/en/research/researchers/ron-peerlings

[#]Louisiana State University
3255C Patrick F. Taylor Hall, Baton Rouge, LA 70803, USA
voyiadjis@eng.lsu.edu
https://www.lsu.edu/eng/cee/people/voyiadjis.php

[^]MINES Paristech
BP 87, F-91003 Evry Cedex, France
samuel.forest@mines-paristech.fr
http://matperso.mines-paristech.fr/People/samuel.forest

Key words: Damage, Fracture, Multiscale, Non-local, Gradient, Micromechanical

ABSTRACT

The surge in computing power over the last decade has motivated significant advances in lifetime and reliability analyses of engineering materials and structures. In support of this demand, a wealth of novel computational modelling techniques have been developed for predicting inelastic material behaviour, including damage localisation, crack initiation, crack propagation, and other material instabilities. The mini-symposium aims to provide a platform for discussion of the newest theoretical and numerical developments at all stages of inelastic material response and degradation, up to failure. Topics of interest include, but are not restricted to, the following areas:

- Initiation or propagation of defects and cracks
- Mechanical, thermal, chemical loading, etc.
- Discrete models, micromechanical formulations, continuum damage descriptions
- Multiscale frameworks bridging different length / time scales
- Determination and Evaluation of physically based length scales

- Objective formulations with non-local / gradient / phase-field enhancements
- Transition from continuous to discontinuous formulation
- Relevant numerical methods